

OUTSOURCING DECISION EXAMPLE WITH EXPENSES ONLY COMPARISON

Example USA

INTRODUCTION

This example shows how to compare two investments that;

Involves an investment in equipment

Incurs operating costs

Uses the “Make Expenses Only Yearly” and “Outsource Expenses Only Yearly” templates and the “Incremental Cash Flow Report” because revenues are not relevant to the investment decisions.

EXAMPLE

A manufacturer is introducing a new line of “Excel” pumps has to decide whether to;

1. Purchase and install the equipment for \$10,000,000 and manufacture the pump casing or;
2. Outsource the manufacturing of the pump casing which will require an investment of \$350,000 for material handlings equipment

General Information

Analysis Period: 9 Years

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

Discount Rate (Before Tax): 15.00%

MAKE ANALYSIS

Project Info Folder

Project Name: Pump Casing. Make Analysis

Project Description: Casing for the Excel Pumps

Analysis Period: 9 years

Investor Folder

Marginal Tax Rate: 35.00%

Discount Rate (Before Tax): 15.00%

Investment Folder

Description: Plant and Equipment

Amount: \$10,000,000

Depreciation Method: Personal Property 200% DB

Recovery Period: 7.0 years

Description: Leasehold Improvements

Amount: \$600,000

Depreciation Method: Personal Prop. St Line

Recovery Period: 9.0 years

Working Capital Folder

Working Capital: Year 1 \$400,000

Expenses Folder

Labor: \$160,000 per month for one year increasing at 3.00% per year compounded for 2 years then 5.00% compounding per year

Materials:

Price: Year 1. \$300 per Unit for the first year then increasing at 5.00% per year compounding

Quantity: Year 1: 1000 per year for 1 year then increasing at 5.00% per year compounded for 2 years then 3.00% compounding per year

Repair & Maintenance: \$20,000 per month increasing at 3.00% compounding

Utilities: \$7,000 per month increasing at 4.00% compounding

Insurance: \$100,000 per year increasing at 3.00% compounding

Incremental Overhead: \$40,000 per month increasing at 3.00% compounding

Rent: 3 Terms. 15,000 Sq. Ft.

Term 1: 3 Years at \$10 per Sq. Ft per year

Term 2: 3 Years at \$12 per Sq. Ft per year

Term 3: 3 Years at \$16 per Sq. Ft per year

Financing Folder

Start Date: Year 1 January

Type: Interest Only Mortgage

Amount: \$4,000,000

Time Period: 6 years

Interest Rate: 7.00% per year

Payments: Monthly

Compounding Period: Monthly

Salvage Value Folder

Disposition Costs

Selling Expenses: 3.00% of Salvage Value

Removal Costs: \$600,000

Salvage Value:

Plant and Equipment: \$1,500,000

Leasehold Improvements: \$0

OUTSOURCE ANALYSIS

Project Info Folder

Project Name: Pump Casing. Outsource Analysis
Project Description: Casing for Excel Pump Line
Analysis Period: 9 years

Investor Folder

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

Investment Folder

Description: Equipment & Facilities
Amount: \$350,000
Depreciation Method: Personal Property 200% DB
Recovery Period: 7.0 years

Description: Leasehold Improvements
Amount: \$200,000
Depreciation Method: Personal Prop. St Line
Recovery Period: 9.0 years

Working Capital Folder

Working Capital: Year 1 \$250,000

Expenses Folder

Product Cost (China):

Price: 3 Term Stepped Projection

Term 1: 3 years at \$3,000 per Unit
Term 2: 3 years at \$5,000 per Unit
Term 3: 3 years at \$7,000 per Unit

Quantity: Year 1: 1000 per year for 1 year then increasing at 5.00% per year compounded for 2 years then 3.00% compounding per year

Additional Labor: \$6,000 per month for 1 year then increasing at 3.00% per year compounded for 2 years then 5.00% compounding per year

Insurance: \$4,000 per year increasing at 3.00% compounding

Incremental Overhead: \$5,000 per month increasing at 3.00% compounding

Rent: 3 Terms. 4,000 Sq. Ft.

Term 1: 3 Years at \$10 per Sq. Ft per year
Term 2: 3 Years at \$12 per Sq. Ft per year
Term 3: 3 Years at \$16 per Sq. Ft per year

Transportation & Handling: 10.00% of Product Cost (China)

Financing Folder

No financing

Salvage Value Folder

Disposition Costs:

Removal Costs: \$45,000

Salvage Value:

Plant and Equipment: \$70,000

Leasehold Improvements: \$0

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
3. The analysis is comparing whether it is more cost effective to make pump casing themselves or outsourcing to a company in China

Templates: 'Make Expenses Only Yearly' projections and 'Outsource Expenses Only Yearly' projections

STEPS

Using the Make and Outsource Expenses Only Yearly projections templates;

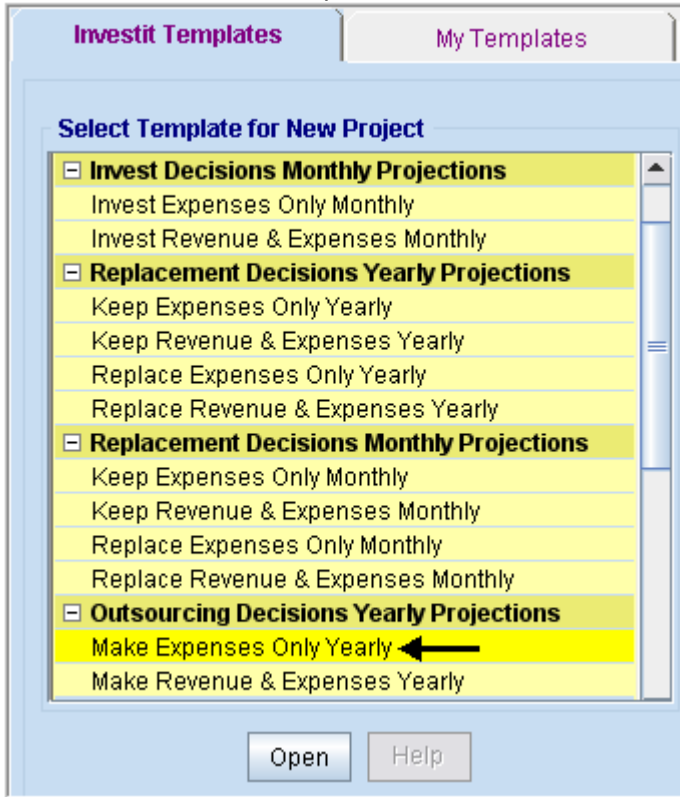
1. Enter the analysis for making the pump casings
2. Enter the analysis for outsourcing the pump casings
3. Use the "Project Comparison Report" or the "Incremental Cash Flow Report" to compare the two options

INSTRUCTIONS FOR ENTERING the MAKE ANALYSIS

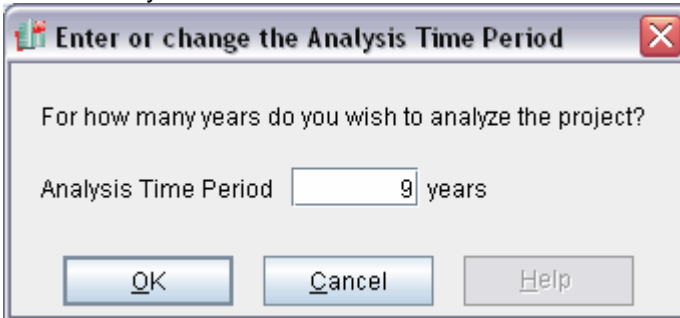
Getting started

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

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



3. Select and open the Investit template “Make Expenses Only Yearly”. The analysis period dialog will open at this point.
4. Enter 9 years and click OK



Entering the project data and information

Project Info Folder

Project Name: Pump Casing. Make Analysis
Project Description: Casing for the Excel Pumps
Analysis Period: 9 years

| Project Info. | Investor | Investment | Working Capital |
|-----------------------------|------------------------------|---|--|
| Report Headers | | | |
| Project Name | Pump Casing. Make Analysis ← | | |
| Project Description | Casing for the Excel Pumps ← | | |
| Analysis Time Period | | | |
| | 9 | Years | <input type="button" value="Change Analysis Time Period"/> |
| Entry Information | | | |
| Enter Revenue and Expenses | Yearly | <input type="button" value="Change Entry Information"/> | |
| Starting Date | January Year 1 | | |

Investor Folder

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

The Investor folder will 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

Description: Plant and Equipment
Amount: \$10,000,000
Depreciation Method: Personal Property 200% DB
Recovery Period: 7.0 years

Description: Leasehold Improvements
Amount: \$600,000
Depreciation Method: Personal Prop. St Line
Recovery Period: 9.0 years

Instructions for setting up the Investment folder

1. Delete rows 1 and 2 with description 'Land' and 'Building'
2. Change 'Equipment & Machinery' to 'Plant and Equipment'
3. Press the Add button to create the Leasehold Improvements

Fill out the folder with the following entries;

| Project Info. | Investor | Investment | Working Capital | Expenses | |
|--------------------------|---------------|------------|-----------------|------------------------|-----------------------|
| Investments | | | | | |
| Inflate | | | | | |
| Description | Amount | Year | Month | Depreciation Method | Recovery Period [yrs] |
| Plant and Equipment ← | \$ 10,000,000 | Year 1 | Jan | Personal Prop. 200% DB | 7.0 |
| Leasehold Improvements ← | \$ 600,000 | Year 1 | Jan | Personal Prop. St Line | 9.0 |

Working Capital Folder

Working Capital: Year 1 \$400,000

| Project Info. | Investor | Investment | Working Capital | Expenses |
|------------------------|-------------------------------------|---------------|-----------------|----------|
| Working Capital | | | | |
| Description | Entry Choice | Year 1 Jan... | Year 2 Jan... | |
| Working Capital | Add or Subtract (-) Working Capital | \$ 400,000 | \$ 0 | |

Expenses Folder

Labor: \$160,000 per month increasing at 3.00% per year compounded for 2 years then 5.00% compounding per year

Materials:

Price: Year 1. \$300 per Unit for the first year then increasing at 5.00% per year compounding

Quantity: Year 1: 1000 per year for 1 year then increasing at 5.00% per year compounded for 2 years then 3.00% compounding per year

Repair & Maintenance: \$20,000 per month increasing at 3.00% compounding

Utilities: \$7,000 per month increasing at 4.00% compounding

Insurance: \$100,000 per year increasing at 3.00% compounding

Incremental Overhead: \$400,000 per month increasing at 3.00% compounding

Rent: 3 Terms. 15,000 Sq. Ft.

Term 1: 3 Years at \$10 per Sq. Ft per year

Term 2: 3 Years at \$12 per Sq. Ft per year

Term 3: 3 Years at \$16 per Sq. Ft per year

Setting up the Expenses folder

1. Press the Add button to add the Building Rent row
2. Make the following entry choice changes

| Project Info. | Investor | Investment | Working Capital | Expenses |
|-----------------------|----------------------------|------------|-----------------|----------|
| Expenses | | | | |
| Description | Entry Choice | Qty | Category | |
| Labor | \$ per Mo ← | — | Common | |
| Materials | \$ per Unit and Quantity ← | — | Common | |
| | Quantity | — | | |
| Repairs & Maintenance | \$ per Mo ← | — | Common | |
| Utilities | \$ per Mo ← | — | Common | |
| Insurance | \$ per Yr | — | Common | |
| Incremental Overhead | \$ per Mo ← | — | Common | |
| Rent | \$ per Sq. Ft per Yr | 15,000 | Common | |

Setting up Labor

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

Projection Wizard

Entry Information

Description: Labor

Entry Choice: \$ per Mo

Projection

| Entry | Project Entry Using... | Increase | Starting Year | Time Period | | Cont. Proj. |
|-----------|------------------------|----------|---------------|-------------------------------------|-----|-------------------------------------|
| | | | | To End | Yrs | |
| \$160,000 | Annual Compounding | 3.00% | Year 1 | 3 | | <input checked="" type="checkbox"/> |
| | Annual Compounding | 5.00% | Year 4 | <input checked="" type="checkbox"/> | 6 | <input type="checkbox"/> |

Projection Description

Labor

Entry Choice: \$ per Month

Year 1 \$160,000 per Month for 1 year

Compounding at 3.00% per year for next 2 years

then Compounding at 5.00% per year for next 6 years

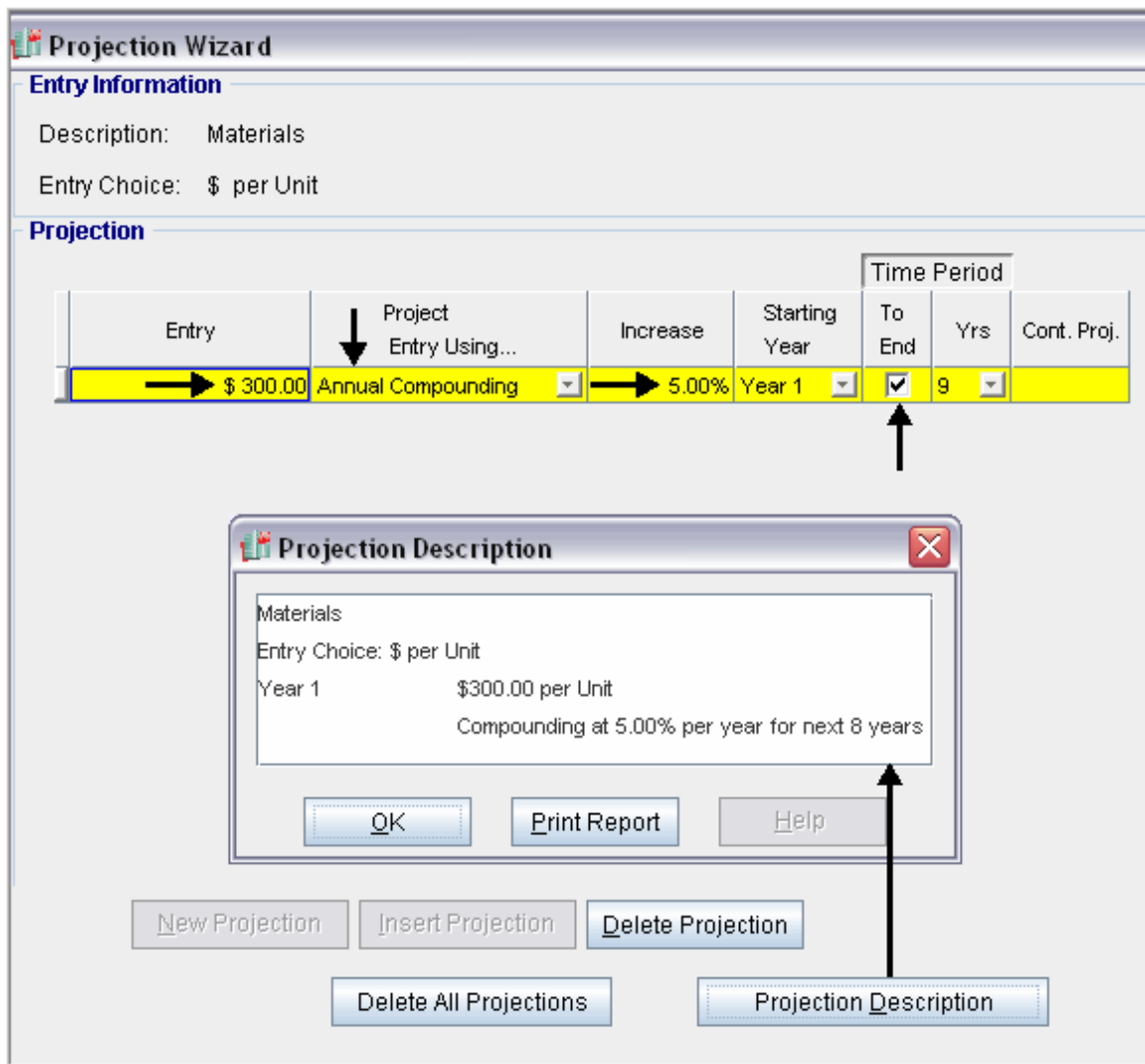
OK Print Report Help

New Projection Insert Projection Delete Projection

Delete All Projections Projection Description

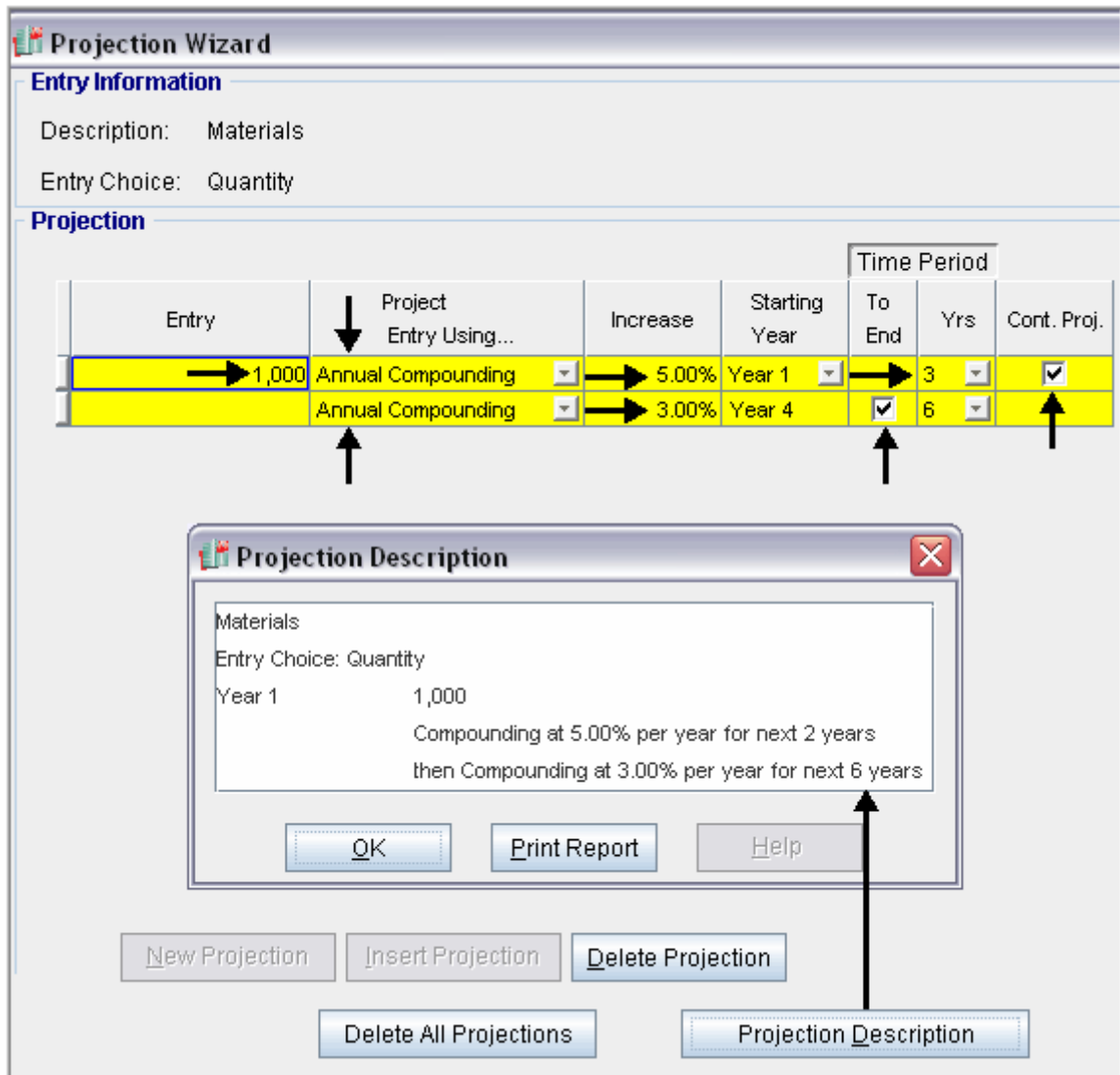
Setting up Materials

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



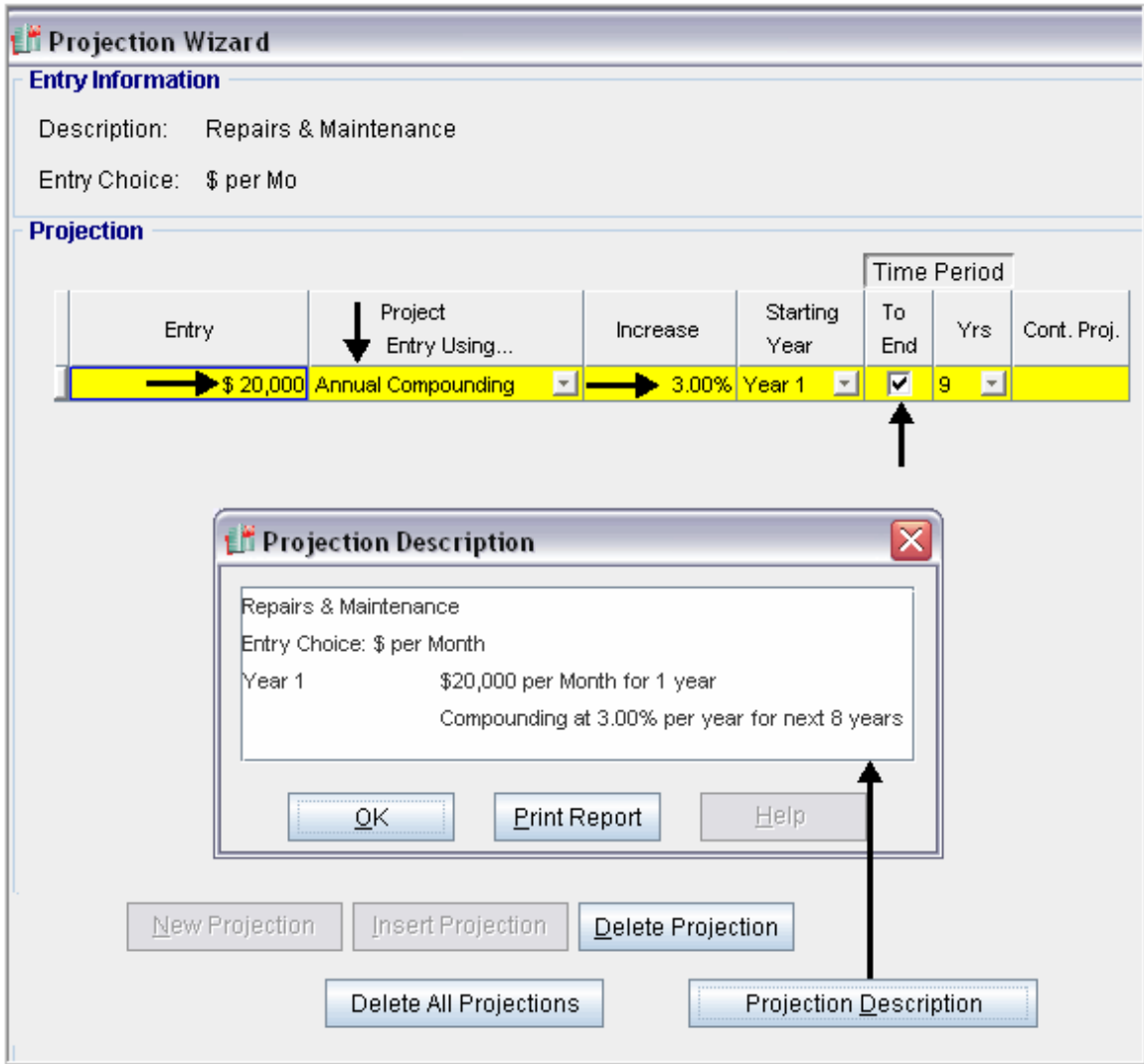
Setting up the Quantity for Materials

1. Select the Quantity row and click on the Projection Wizard button
2. Enter the following entries into the Projection Wizard



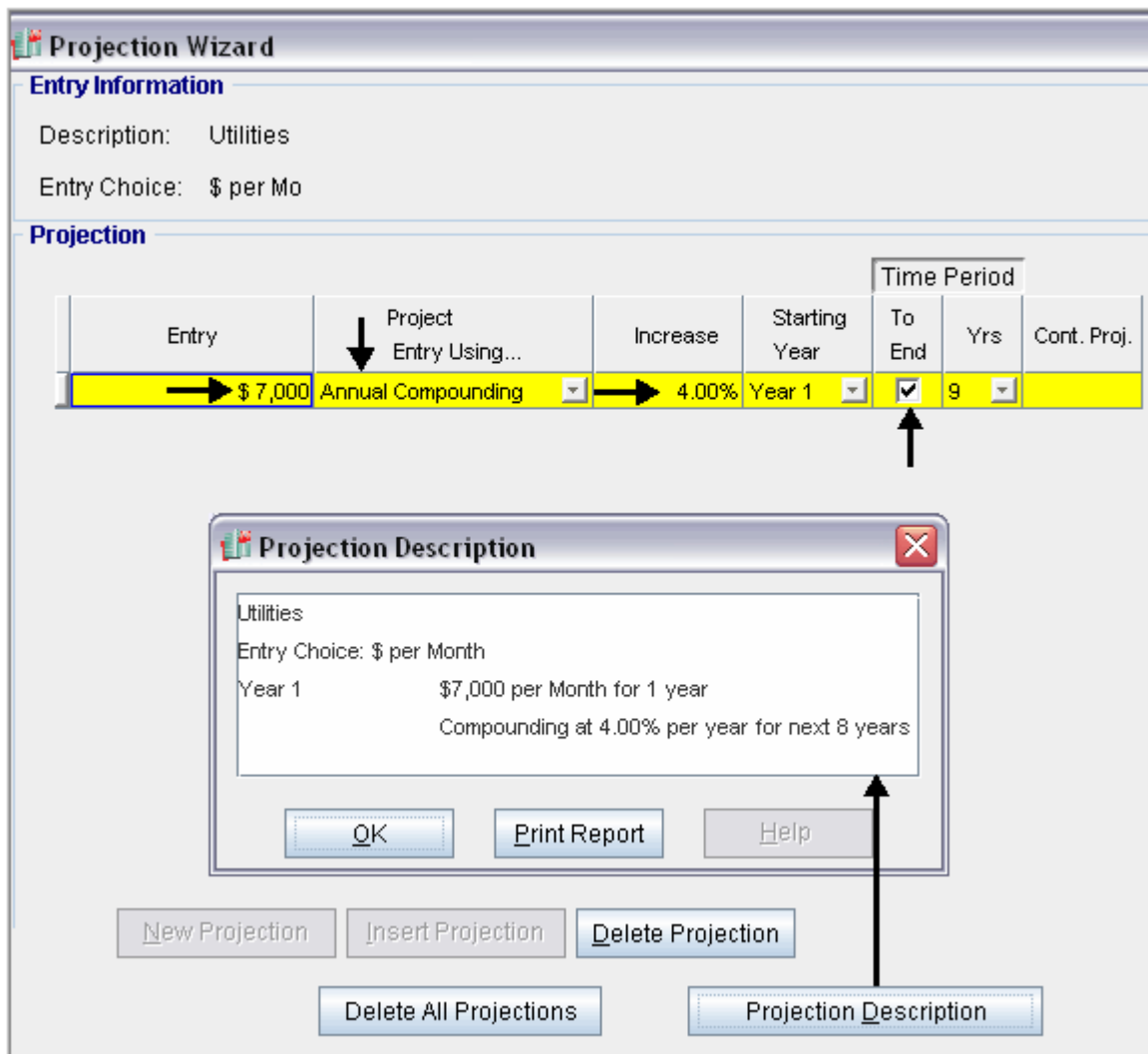
Steps for entering Repairs & Maintenance

1. Select the Repairs & Maintenance row
2. Click on the Projection Wizard button and enter the following entries



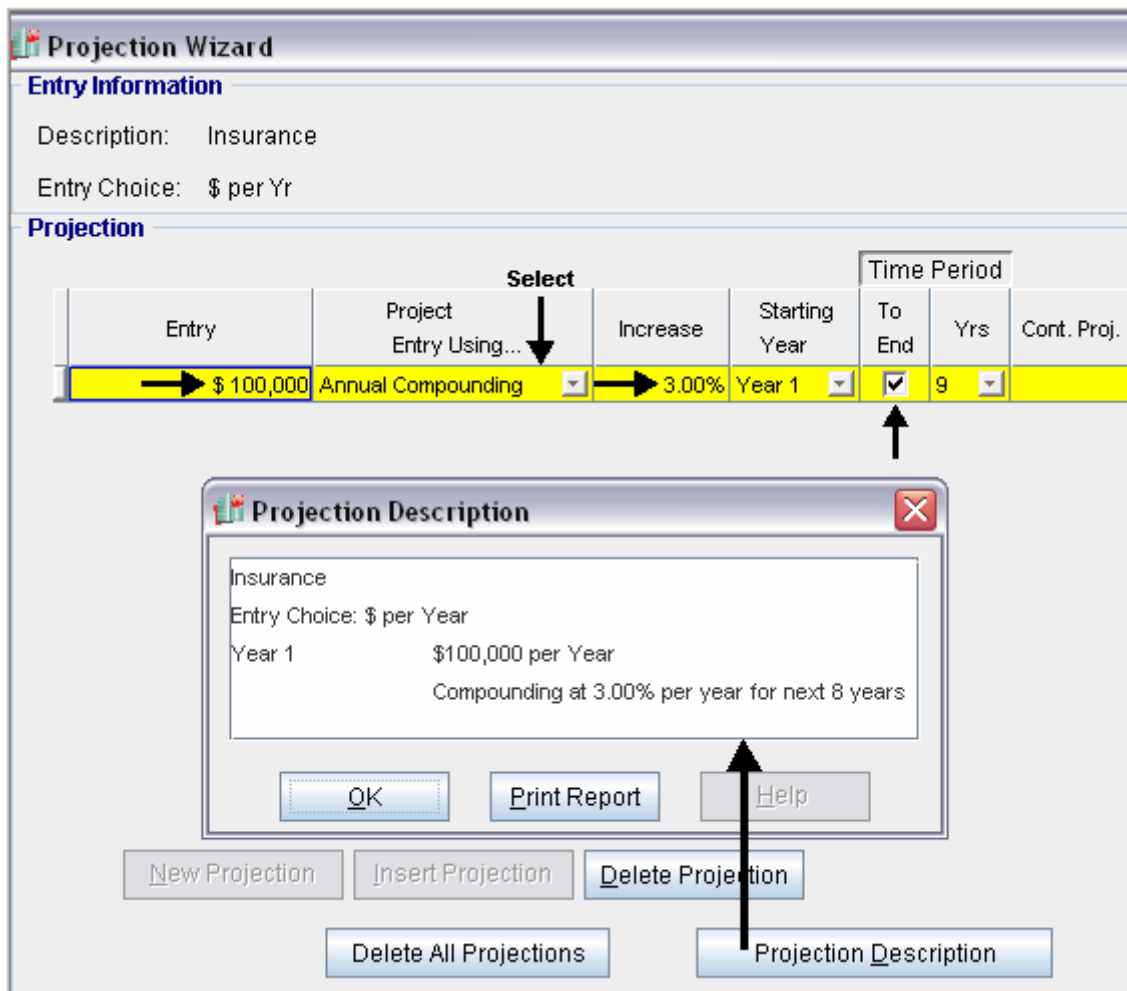
Steps for entering Utilities

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



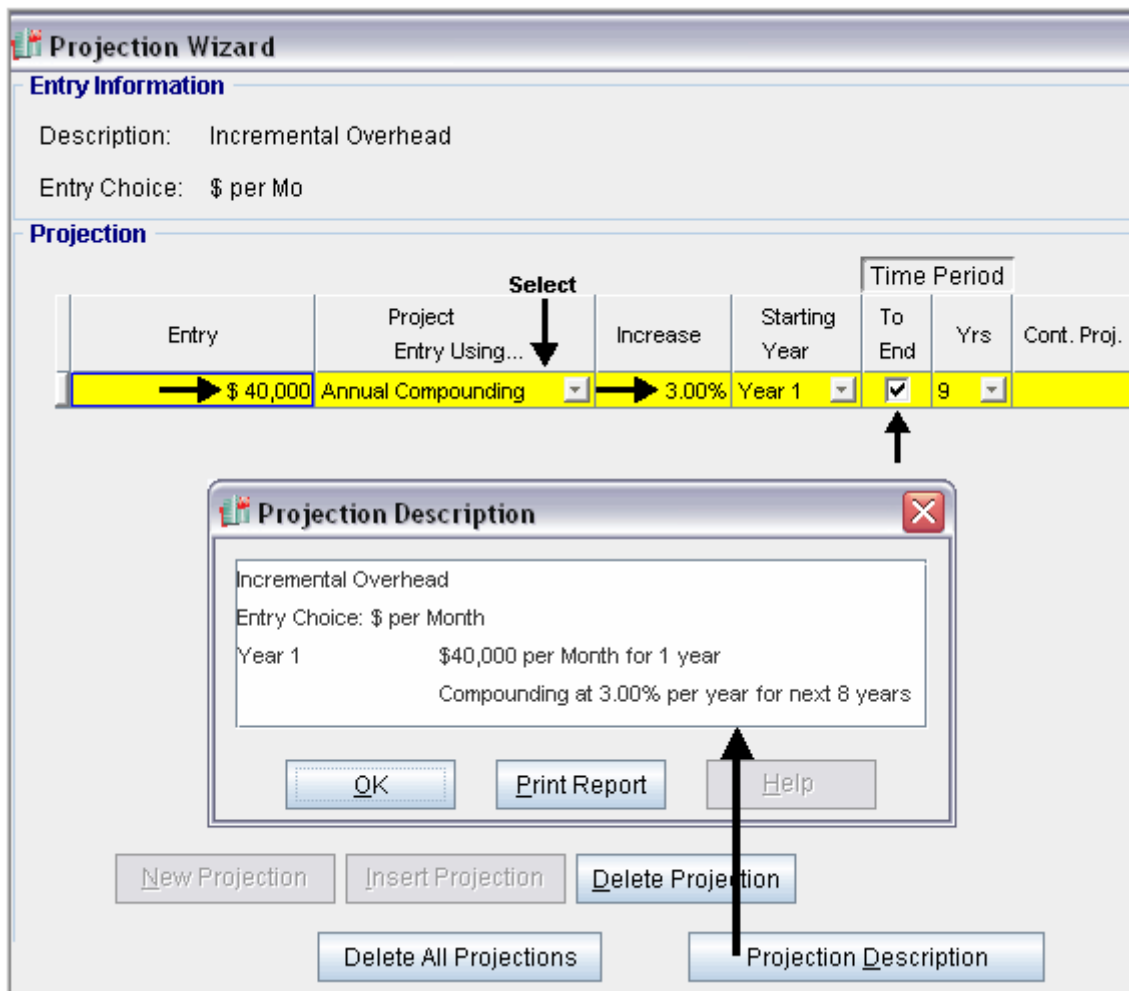
Steps for entering Insurance

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



Steps for entering Incremental Overhead

1. Select the Incremental Overhead row
2. Click on the Projection Wizard button and enter the following entries



Steps for entering Rent

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

Projection Wizard

Entry Information
 Description: Rent
 Entry Choice: \$ per Sq. Ft per Yr

Projection

| Entry | Project Entry Using... | Increase | Term | Starting Year | Time Period | | Cont. Proj. |
|----------|------------------------|----------|------|---------------|-------------------------------------|-----|-------------|
| | | | | | To End | Yrs | |
| \$ 10.00 | Stepped Projection | \$ 12.00 | 1 | Year 1 | 3 | 3 | |
| \$ 16.00 | | \$ 16.00 | 2 | Year 4 | 3 | 3 | |
| | | | 3 | Year 7 | <input checked="" type="checkbox"/> | 3 | |

Stepped Projection

New value at "End of Term" based on:

- Annual Compounding Rate Increase
- Enter Value
- \$ Increase
- % Increase

No. of Terms:

Show E

Projection Description

Rent
 Entry Choice: \$ per Sq. Ft per Year
 Quantity: 15,000
 Year 1 Jan Stepped Projection
 Term 1: \$10.00 per Sq. Ft per Year for 3 years
 Term 2: Changed to \$12.00 per Sq. Ft per Year for 3 years
 Term 3: Changed to \$16.00 per Sq. Ft per Year for 3 years

Buttons: OK, Print Report, Help

Main Window Buttons: New Projection, Insert Projection, Delete Projection, Edit Stepped Projection, Delete All Projections, Projection Description

Financing Folder

Start Date: Year 1 January
Type: Interest Only Mortgage
Amount: \$4,000,000
Time Period: 6 years
Interest Rate: 7.00% per year
Payments: Monthly
Compounding: Monthly

Make the following entries into the Mortgage window

Mortgage

Mortgage Details

Analysis Period: Year 1 Jan to Year 9 Dec

Commencing Year 1 Month January

Type Interest Only Payment

Amount \$ 4,000,000 Interest Rate Fixed

Description Equipment & Improvements

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

| Time Period | | | |
|-------------|-------|--------|-----------------------|
| Term No | Years | Months | Nominal Interest Rate |
| 1 | 6 | 0 | 7.000% |

Make the entries and then click on the Compute button

OK Compute Fill Down Cancel Help

Salvage Value Folder

Disposition Costs:

Selling Expenses: 3.00%

Removal Costs: \$600,000

Salvage Value:

Plant and Equipment: \$1,500,000

Leasehold Improvements: \$0

Make the following entries in the Salvage Value folder

| Working Capital | Expenses | Financing | Salvage Value |
|--|--------------------|---------------|---------------|
| Disposition Costs | | | |
| Description | Entry Choice | Expense | |
| Selling Expenses | % of Salvage Value | 3.00% | |
| Legal | % of Salvage Value | 0.00% | |
| Removal Costs | Amount | \$ 600,000 | |
| <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 | |
| Plant and Equipment | \$ 10,000,000 | \$ 1,500,000 | |
| Leasehold Improvements | \$ 600,000 | \$ 0 | |

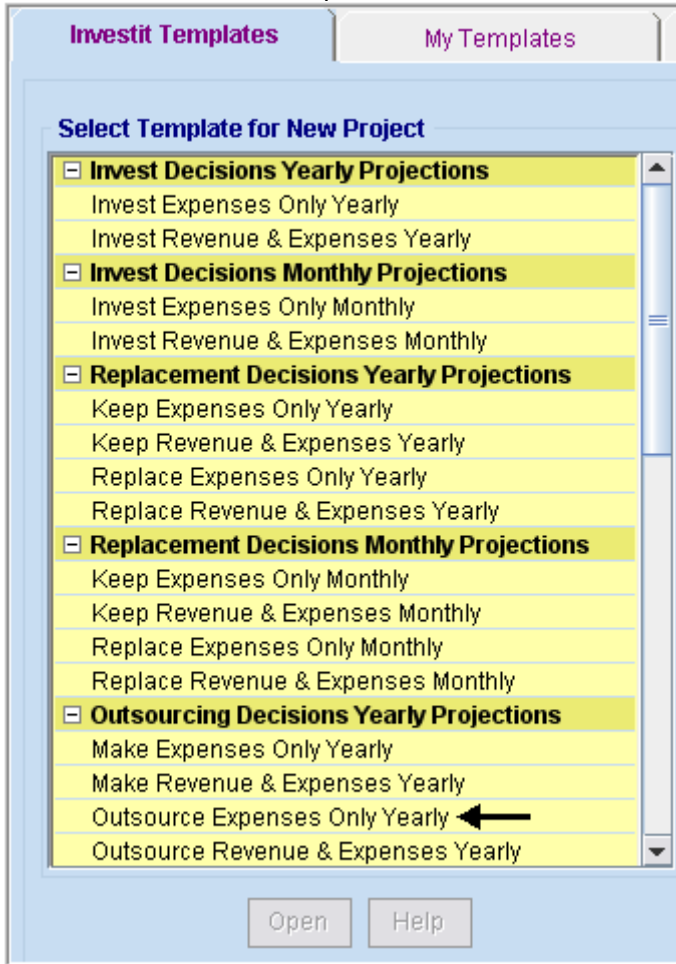
SAVE YOUR PROJECT

INSTRUCTIONS FOR ENTERING the OUTSOURCE ANALYSIS

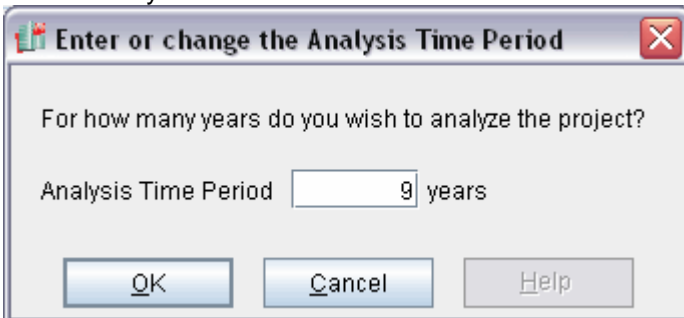
Getting started

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

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



3. Select and open the Investit template “Outsource Expenses Only Yearly”. The analysis period dialog will open at this point.
4. Enter 9 years and click OK



Entering the project data and information

Project Info Folder

Project Name: Pump Casing. Outsource Analysis
 Project Description: Casing for Excel Pump Line
 Analysis Period: 9 years

| Project Info. | Investor | Investment | Working Capital |
|-----------------------------|-----------------------------------|--------------------------|-----------------------------|
| Report Headers | | | |
| Project Name | Pump Casing. Outsource Analysis ← | | |
| Project Description | Casing for Excel Pump Line ← | | |
| Analysis Time Period | | | |
| | 9 | 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): 15.00%

The Investor folder will 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

Description: Equipment & Facilities
 Amount: \$350,000
 Depreciation Method: Personal Property 200% DB
 Recovery Period: 7.0 years

Description: Leasehold Improvements
 Amount: \$200,000
 Depreciation Method: Personal Prop. St Line
 Recovery Period: 9.0 years

Instructions for setting up the Investment folder

1. Press the Add button to add the Leasehold Improvements Row
2. Enter the following data to complete the Investment folder;

Fill out the folder with the following entries;

| Project Info. | Investor | Investment | Working Capital | Expenses | |
|--------------------------|--------------|------------|-----------------|--------------------------|-----------------------|
| Investments | | | | | |
| Inflate | | | | | |
| Description | Amount | Year | Month | Depreciation Method | Recovery Period [yrs] |
| Equipment & Facilities ← | \$ 350,000 → | Year 1 ▾ | Jan ▾ | Personal Prop. 200% DB ▾ | 7.0 → |
| Leasehold Improvements ← | \$ 200,000 → | Year 1 ▾ | Jan ▾ | Personal Prop. St Line ▾ | 9.0 → |

Working Capital Folder

Working Capital: Year 1 \$250,000

| Project Info. | Investor | Investment | Working Capital | Expenses |
|------------------------|---------------------------------------|---------------|-----------------|----------|
| Working Capital | | | | |
| Description | Entry Choice | Year 1 Jan... | Year 2 Jan... | |
| Working Capital | Add or Subtract (-) Working Capital ▾ | \$ 250,000 ← | \$ 0 | |

Expenses Folder

Product Cost (China):

Price: 3 Term Stepped Projection

Term 1: 3 years at \$3,000 per Unit

Term 2: 3 years at \$5,000 per Unit

Term 3: 3 years at \$7,000 per Unit

Quantity: Year 1: 1000 per year for 1 year then increasing at 5.00% per year compounded for 2 years then 3.00% compounding per year

Additional Labor: \$6,000 per month increasing at 3.00% per year compounded for 2 years then 5.00% compounding per year

Insurance: \$4,000 per year increasing at 3.00% compounding

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

Rent: 3 Terms. 4,000 Sq. Ft.

Term 1: 3 Years at \$10 per Sq. Ft per year

Term 2: 3 Years at \$12 per Sq. Ft per year

Term 3: 3 Years at \$16 per Sq. Ft per year

Transportation & Handling: 10.00% of Product Cost (China)

Setting up the Expenses folder

1. Press the Add button twice to add the Rent and Transportation rows
2. Select the Incremental Overhead and press the Insert button to add the Insurance row
3. Make the following entry choice changes

| Project Info. | | Investor | | Investment | | Working Capital | | Expenses | |
|-----------------------------|--------------------------|----------|--|------------|----------|-----------------|--|----------|--|
| Expenses | | | | | | | | | |
| Description | Entry Choice | | | Qty | Category | | | | |
| Product Cost (China) ← | \$ per Unit and Quantity | | | — | Common | | | | |
| | Quantity | | | — | | | | | |
| Additional Labor | \$ per Mo ← | | | — | Common | | | | |
| Insurance ← | \$ per Yr | | | — | Common | | | | |
| Incremental Overhead ← | \$ per Mo ← | | | — | Common | | | | |
| Rent ← | \$ per Sq. Ft per Yr ← | | | →4,000 | Common | | | | |
| Transportation & Handling ← | % of Expense(s) ← | | | — | Common | | | | |

4. When selecting the Entry Choice “% of Expense(s)” for Transportation & Handling a window will pop up. Select the following

Expenses ✖

Select

| | Description |
|-------------------------------------|----------------------|
| <input checked="" type="checkbox"/> | Product Cost (China) |
| <input type="checkbox"/> | Additional Labor |
| <input type="checkbox"/> | Insurance |
| <input type="checkbox"/> | Incremental Overhead |
| <input type="checkbox"/> | Rent |

Setting up Product Cost (China)

1. Select row 1 'Product Cost (China)
2. Click on the Projection Wizard button and enter the following entries

Projection Wizard

Entry Information

Description: Product Cost (China)
Entry Choice: \$ per Unit

Projection

| Entry | Project Entry Using... | Increase | Term | Starting Year | Time Period | | Cont. Proj. |
|----------|------------------------|----------|------|---------------|-------------------------------------|-----|-------------|
| | | | | | To End | Yrs | |
| \$ 3,000 | Stepped Projection | \$ 5,000 | 1 | Year 1 | 3 | 3 | |
| | | \$ 7,000 | 2 | Year 4 | 3 | 3 | |
| | | | 3 | Year 7 | <input checked="" type="checkbox"/> | 3 | |

Projection Description

Product Cost (China)
Entry Choice: \$ per Unit
Year 1 Jan Stepped Projection
Term 1: \$3,000 per Unit for 3 years
Term 2: Changed to \$5,000 per Unit for 3 years
Term 3: Changed to \$7,000 per Unit for 3 years

Buttons: OK, Print Report, Help

Buttons: New Projection, Insert Projection, Delete Projection

Buttons: Edit Stepped Projection, Delete All Projections, Projection Description

Setting up the Quantity for 'Product Cost (China)'

3. Select the Quantity row for 'Product Cost (China)'
4. Click on the Projection Wizard button and enter the following entries

Projection Wizard

Entry Information

Description: Product Cost (China)
Entry Choice: Quantity

Projection

| Entry | Project Entry Using... | Increase | Starting Year | Time Period | | | Cont. Proj. |
|---------|------------------------|----------|---------------|-------------|-----|-------------------------------------|-------------|
| | | | | To End | Yrs | | |
| → 1,000 | Annual Compounding | → 5.00% | Year 1 | → 3 | → | <input checked="" type="checkbox"/> | |
| | Annual Compounding | → 3.00% | Year 4 | → | 6 | <input checked="" type="checkbox"/> | |

Projection Description

Product Cost (China)
Entry Choice: Quantity
Year 1 1,000
 Compounding at 5.00% per year for next 2 years
 then Compounding at 3.00% per year for next 6 years

Buttons: OK, Print Report, Help, New Projection, Insert Projection, Delete Projection, Delete All Projections, Projection Description

Setting up Additional Labor

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

The screenshot shows the 'Projection Wizard' application window. It has two main sections: 'Entry Information' and 'Projection'.

Entry Information:
 Description: Additional Labor
 Entry Choice: \$ per Mo

Projection Table:

| Entry | Project Entry Using... | Increase | Starting Year | Time Period | | Cont. Proj. |
|----------|------------------------|----------|---------------|-------------|-----|-------------------------------------|
| | | | | To End | Yrs | |
| \$ 6,000 | Annual Compounding | 3.00% | Year 1 | 3 | | <input checked="" type="checkbox"/> |
| | Annual Compounding | 5.00% | Year 4 | 6 | | <input checked="" type="checkbox"/> |

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

Additional Labor
 Entry Choice: \$ per Month
 Year 1 \$6,000 per Month for 1 year
 Compounding at 3.00% per year for next 2 years
 then Compounding at 5.00% per year for next 6 years

Buttons in the dialog box: OK, Print Report, Help.

Buttons at the bottom of the wizard: New Projection, Insert Projection, Delete Projection, Delete All Projections, Projection Description.

Setting up the Insurance

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

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

| Entry | Project Entry Using... | Increase | Starting Year | To End | Yrs | Cont. Proj. |
|----------|------------------------|----------|---------------|-------------------------------------|-----|-------------|
| \$ 4,000 | Annual Compounding | 3.00% | Year 1 | <input checked="" type="checkbox"/> | 9 | |

A 'Time Period' dialog box is open, showing the following details:

- Insurance
- Entry Choice: \$ per Year
- Year 1 \$4,000 per Year
- Compounding at 3.00% per year for next 8 years

Buttons for 'OK', 'Print Report', and 'Help' are visible. At the bottom of the main window, there are buttons for 'New Projection', 'Insert Projection', 'Delete Projection', 'Delete All Projections', and 'Projection Description'.

Steps for entering Incremental Overhead

1. Select the Incremental Overhead row
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: Incremental Overhead
Entry Choice: \$ per Mo

Projection:

| 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"/> | 9 | |

A 'Projection Description' dialog box is open, showing the following details:

Incremental Overhead
Entry Choice: \$ per Month
Year 1 \$5,000 per Month for 1 year
Compounding at 3.00% per year for next 8 years

The dialog box includes buttons for 'OK', 'Print Report', and 'Help'. Below the dialog box, there are buttons for 'New Projection', 'Insert Projection', 'Delete Projection', 'Delete All Projections', and 'Projection Description'. Arrows in the original image point from the 'Projection Description' button to the dialog box and from the 'To End' checkbox in the table to the dialog box.

Steps for entering Rent

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

Projection Wizard

Entry Information

Description: Rent
Entry Choice: \$ per Sq. Ft per Yr

Projection

| Entry | Project Entry Using... | Increase | Term | Time Period | | | Cont. Proj. |
|----------|------------------------|----------|------|---------------|--------|-------------------------------------|-------------|
| | | | | Starting Year | To End | Yrs | |
| \$ 10.00 | Stepped Projection | \$ 12.00 | 1 | Year 1 | 3 | | |
| \$ 16.00 | | \$ 16.00 | 2 | Year 4 | 3 | | |
| | | | 3 | Year 7 | 3 | <input checked="" type="checkbox"/> | |

Stepped Projection

New value at "End of Term" based on:

Annual Compounding Rate Increase

Enter Value

\$ Increase

% Increase

No. of Terms: 3

Show Example ->

Projection Description

Rent
Entry Choice: \$ per Sq. Ft per Year
Quantity: 4,000
Year 1 Jan Stepped Projection
Term 1: \$10.00 per Sq. Ft per Year for 3 years
Term 2: Changed to \$12.00 per Sq. Ft per Year for 3 years
Term 3: Changed to \$16.00 per Sq. Ft per Year for 3 years

Buttons: OK, Print Report, Help

Buttons: New Projection, Insert Projection, Delete Projection

Buttons: Edit Stepped Projection, Delete All Projections, Projection Description

Steps for entering Transportation & Handling

1. Select the Transportation & Handling row
2. Click on the Projection Wizard button and enter the following entries

The screenshot displays the 'Projection Wizard' dialog box. Under the 'Entry Information' section, the 'Description' is 'Transportation & Handling' and the 'Entry Choice' is '% of Expense(s)'. The 'Projection' section contains a table with the following data:

| % | Project Entry Using... | Increase | Starting Year | To End | Yrs | Cont. Proj. |
|--------|------------------------|----------|---------------|-------------------------------------|-----|-------------|
| 10.00% | Constant (Fill Right) | | Year 1 | <input checked="" type="checkbox"/> | 9 | |

A 'Projection Description' sub-dialog box is open, showing the following details:

- Description: Transportation & Handling
- Entry Choice: % of Expense(s)
- Product Cost (China)
- Year 1: 10.00% of Expense(s)
- Constant per year for next 8 years

Buttons at the bottom of the main window include 'New Projection', 'Insert Projection', 'Delete Projection', 'Delete All Projections', and 'Projection Description'. The 'Projection Description' button is highlighted with an arrow pointing to the sub-dialog box.

Financing Folder

No Financing

Salvage Value Folder

Disposition Costs:

Removal Costs: \$45,000

Salvage Value:

Plant and Equipment: \$70,000

Leasehold Improvements: \$0

Make the following entries in the Salvage Value folder

| 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% | |
| Removal Costs | Amount | → \$ 45,000 | |
| <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 | |
| Equipment & Facilities | \$ 350,000 | → \$ 70,000 | |
| Leasehold Improvements | \$ 200,000 | \$ 0 | |

SAVE YOUR PROJECT

DECIDING BETWEEN THE “MAKE” or “BUY”

To decide between the two options use the;

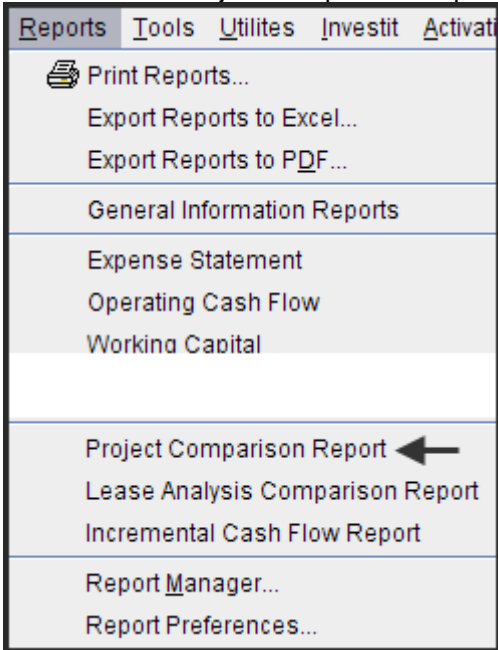
- a) The Project Comparison Report and
- b) The Incremental Cash Flow Report

Project Comparison Report

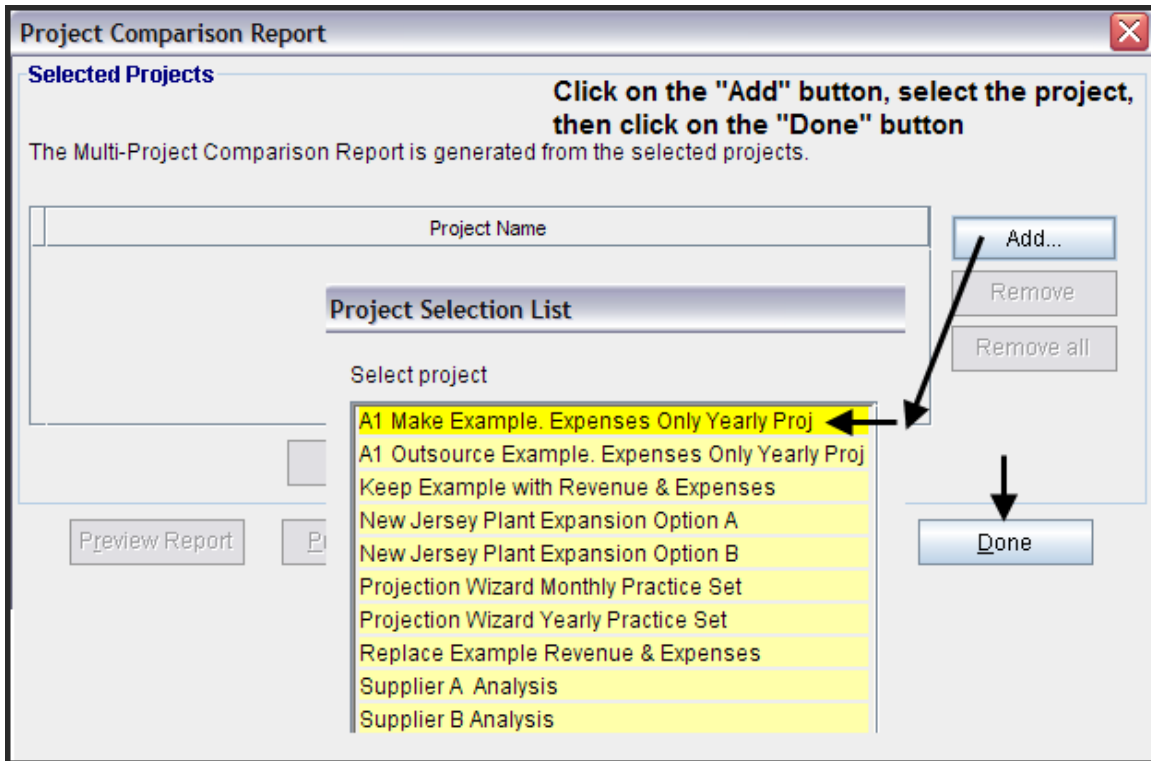
Up to four projects can be compared side by side.

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

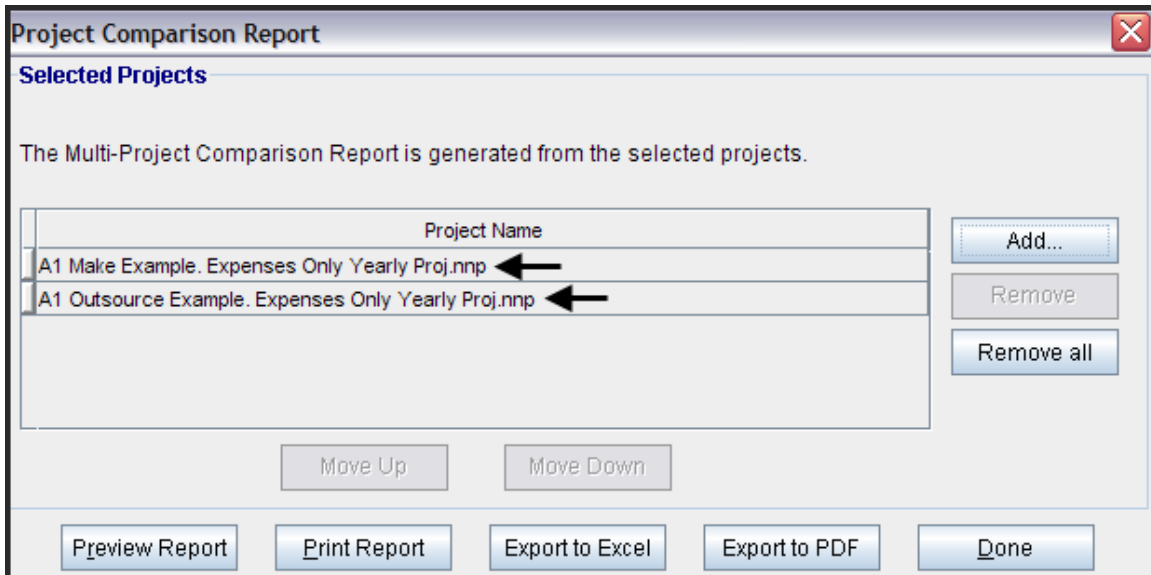
1. Select the Project Comparison Report on the Report menu



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(s).



3. 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) | | | |
| | | A1 Make Example. Expenses Only Yearly Proj | A1 Outsource Example. Expenses Only Yearly Proj |
| Year | 0 | (7,000,000) | (800,000) |
| | 1 | (3,954,000) | (3,726,000) |
| | 2 | (3,670,310) | (3,645,080) |
| | 3 | (3,792,535) | (3,824,184) |
| | 4 | (3,983,822) | (6,446,135) |
| | 5 | (4,153,535) | (6,639,242) |
| | 6 | (8,332,173) | (6,838,105) |
| | 7 | (4,300,224) | (9,788,960) |
| | 8 | (4,498,631) | (10,088,495) |
| | 9 | (3,052,132) | (9,863,335) |
| | Total | (46,737,364) | (61,659,536) |
| 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) | ➔ | \$ 27,607,060) at 15.00% | ➔ \$ 29,035,199) at 15.00% |
| Annual Equivalency | ➔ | (\$ 5,785,722) at 15.00% | ➔ (\$ 6,085,023) 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 (NV) at 15.00% | Annual Equivalency at 15.00% |
|------------------|----------------------------------|------------------------------|
| Make | (\$27,607,060) | (\$5,785,722) |
| Outsource | (\$29,035,199) | (\$6,085,023) |

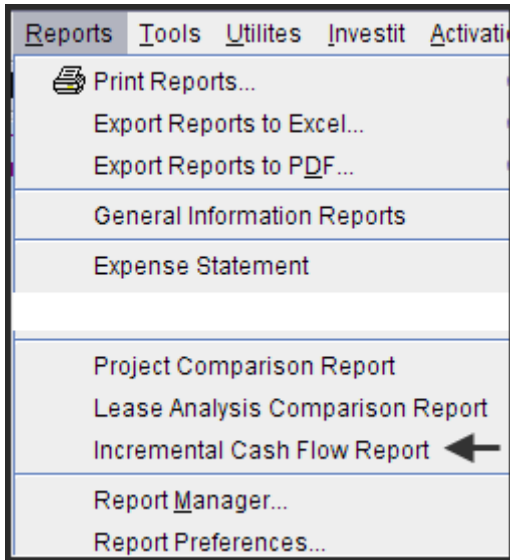
The company should choose the option that provides the lowest Net Present Value (NPV), which is to “Make” the pumps rather than “Outsource” them

Incremental Cash Flow Report

Can be used to show the differences in the cash for “Make” versus “Outsource”

Steps

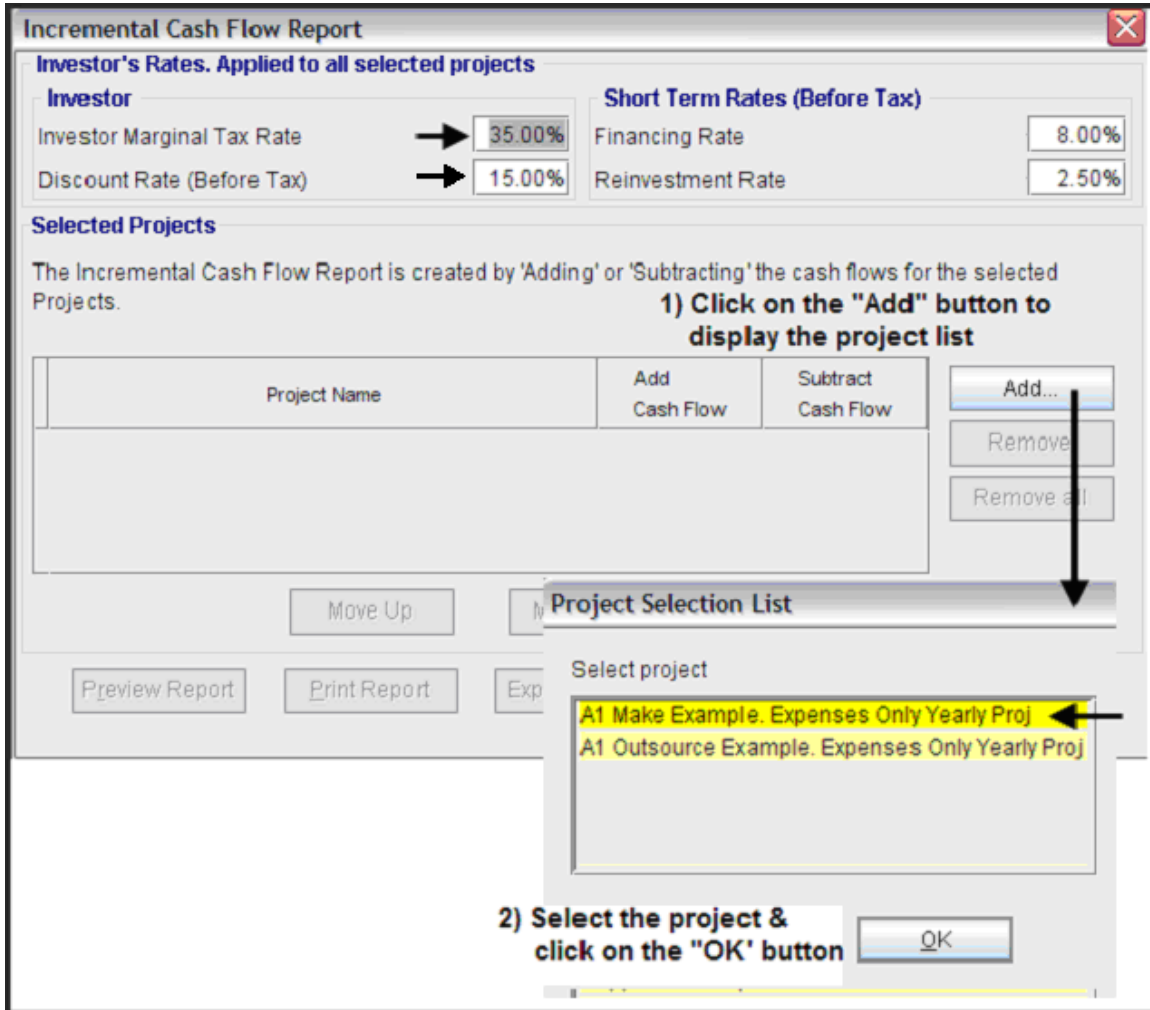
Select the Incremental Cash Flow on the Report menu



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(s).



The selected projects for the Incremental Cash Flow Report are;

Incremental Cash Flow Report

Investor's Rates. Applied to all selected projects

Investor

Investor Marginal Tax Rate → 35.00% Short Term Rates (Before Tax)

Discount Rate (Before Tax) → 15.00% 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 |
|---|----------------------------------|----------------------------------|
| A1 Make Example. Expenses Only Yearly Proj.nnp | <input checked="" type="radio"/> | <input type="radio"/> |
| A1 Outsource Example. Expenses Only Yearly Proj.nnp | <input type="radio"/> | <input checked="" type="radio"/> |

The cash flow for "Outsource" will be subtracted from the cash flow for "Make"

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) | | | |
|--|---------------------------|---------------------------|-------------------|
| | Plus | Minus | Incremental |
| | A1 Make Example. | A1 Outsource Example. | Net Cash Flow |
| | Expenses Only Yearly Proj | Expenses Only Yearly Proj | (Before Tax) |
| Year 0 | (7,000,000) | (800,000) | (6,200,000) |
| 1 | (3,954,000) | (3,726,000) | (228,000) |
| 2 | (3,670,310) | (3,646,080) | (25,230) |
| 3 | (3,792,535) | (3,824,184) | 31,649 |
| 4 | (3,983,822) | (6,446,135) | 2,462,313 |
| 5 | (4,163,535) | (6,639,242) | 2,485,707 |
| 6 | (8,332,173) | (6,838,105) | (1,494,068) |
| 7 | (4,300,224) | (9,788,960) | 5,488,736 |
| 8 | (4,498,631) | (10,088,495) | 5,589,864 |
| 9 | (3,052,132) | (9,863,335) | 6,811,203 |
| Total | (46,737,364) | (61,659,536) | 14,922,172 |
| Before Tax Financial Return | | | |
| Internal Rate of Return (IRR) | N/A | N/A | → 18.42% |
| Net Present Value (NPV) at 15.00% | → (\$ 27,607,060) | → (\$ 29,035,199) | → \$ 1,428,139 |
| Modified Internal Rate of Return (MIRR) | N/A | N/A | 13.94% |
| 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% | (\$ 5,785,722) | (\$ 6,085,023) | \$ 299,301 |
| Benefit to Cost Ratio at 15.00% | N/A | N/A | N/A |
| Payback Period | N/A | N/A | 6.54 years |
| Discounted Pay Back Period at 15.00% | N/A | N/A | 8.26 years |

Interpretation and conclusion

Making the pumps will save \$1,428,139 when discounted at 15.00% and provide an Internal Rate of Return (IRR) of 18.42%