A More Realistic Project Pro Forma

Let's build something you can really use!

Something you might build someday…

You work for a local company that wants to launch a new line of thin-film solar panels based on a low-cost technology developed by the University of Colorado.

Based on the following, prepare an 8-year after-tax cash flow analysis and decide whether the investment is worth it, using NPV, IRR and PBP as your decision criteria.

Unit Sales per year: Varies (see estimated forecasts)

Price per unit: $150 in Years 1-3
$130 in Years 4-8

COGS:
Variable Costs: $60 per unit
Fixed Costs (Prod'n O/H): $25,000 per year

Inventory Requirement: $20,000 at the start
15% of sales thereafter

Engineering Costs: Varies
Marketing Costs: Varies

New Equipment Cost: $800,000

Depreciation Schedule: 7-year, MACRS,
20% salvage value

Corporate Tax Rate: 21%

Company Discount Rate: 15%

Step 1: Calculate Revenues and Product Costs…

	Year							
REVENUES:	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Price ($/unit):	$150	$150	$150	$130	$130	$130	$130	$130
Sales (Volume)	3,000	5,000	6,000	6,500	6,000	5,000	4,000	3,000
Revenues ($)	**$450,000**	**$750,000**	**$900,000**	**$845,000**	**$780,000**	**$650,000**	**$520,000**	**$390,000**

	Year							
COGS:	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Variable Cost (@ $60/Unit):	$180,000	$300,000	$360,000	$390,000	$360,000	$300,000	$240,000	$180,000
Fixed Cost ($)	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000
COGS ($)	**$205,000**	**$325,000**	**$385,000**	**$415,000**	**$385,000**	**$325,000**	**$265,000**	**$205,000**

Step 2: Create the Pro Forma Income Statement

	Year							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Revenues:	$450,000	$750,000	$900,000	$845,000	$780,000	$650,000	$520,000	$390,000
COGS:	$205,000	$325,000	$385,000	$415,000	$385,000	$325,000	$265,000	$205,000
Gross Profit:	**$245,000**	**$425,000**	**$515,000**	**$430,000**	**$395,000**	**$325,000**	**$255,000**	**$185,000**
Engineering:	$100,000	$100,000	$50,000	$50,000	$25,000	$25,000	$25,000	$25,000
Marketing:	$50,000	$50,000	$40,000	$30,000	$20,000	$20,000	$20,000	$20,000
Depreciation:								
Operating Expenses:								
Operating Income (EBIT):								

Step 2: Create the Pro Forma Income Statement…

	Year							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Revenues:	$450,000	$750,000	$900,000	$845,000	$780,000	$650,000	$520,000	$390,000
COGS:	$205,000	$325,000	$385,000	$415,000	$385,000	$325,000	$265,000	$205,000
Gross Profit:	**$245,000**	**$425,000**	**$515,000**	**$430,000**	**$395,000**	**$325,000**	**$255,000**	**$185,000**
Engineering:	$100,000	$100,000	$50,000	$50,000	$25,000	$25,000	$25,000	$25,000
Marketing:	$50,000	$50,000	$40,000	$30,000	$20,000	$20,000	$20,000	$20,000
Depreciation:								
Operating Expenses:								
Operating Income (EBIT):								

Now we have to figure out depreciation expense on the equipment…

Step 3: Time to talk to the Tax Department…

You ask your tax department what the MACRS Depreciation Schedule would be for this piece of manufacturing equipment. They look it up in IRS Publication 945 and tell you the asset class requires a 7-Year schedule…and provide you the MACRS values for each year…

Year	MACRS Value
1	0.1429
2	0.2449
3	0.1749
4	0.1249
5	0.0893
6	0.0892
7	0.0893
8	0.0446

Remember, a 7-year schedule has two ½ years at the beginning and end!

Step 3: Calculate the Depreciation Expense…

Equipment Cost Basis: $800,000 (fully installed)

Year	MACRS Value	Depreciation Expense	Ending Book Value
1	0.1429	$114,320*	$685,680+
2	0.2449	$195,920**	$489,760++
3	0.1749	$139,920	$349,840
4	0.1249	$99,920	$249,920
5	0.0893	$71,440	$178,480
6	0.0892	$71,360	$107,120
7	0.0893	$71,440	$35,680
8	0.0446	$35,680	$0

** $800,000 x 0.1429 = $114,320*

*** $800,000 x 0.2449 = $195,920*

+ $800,000 - $114,320 = $685,680

++ $685,680 - $195,920 = $489,760

Step 3: Calculate the Depreciation Expense…

Initial Equipment Cost: $800,000

Year	MACRS Value	Depreciation Expense	Ending Book Value
1	0.1429	$114,320*	$685,680+
2	0.2449	$195,920**	$489,760++
3	0.1749	$139,920	
4	0.1249	$99,920	
5	0.0893	$71,440	
6	0.0892	$71,360	$107,120
7	0.0893	$71,440	$35,680
8	0.0446	$35,680	$0

We enter these values into our Income Statement…

* $800,000 x 0.1429 = $114,320

** $800,000 x 0.2449 = $195,920

\+ $800,000 - $114,320 = $685,680

++ $685,680 - $195,920 = $489,760

Step 4: Complete the Operating Expenses Section

	Year							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Revenues:	$450,000	$750,000	$900,000	$845,000	$780,000	$650,000	$520,000	$390,000
COGS:	$205,000	$325,000	$385,000	$415,000	$385,000	$325,000	$265,000	$205,000
Gross Profit:	**$245,000**	**$425,000**	**$515,000**	**$430,000**	**$395,000**	**$325,000**	**$255,000**	**$185,000**
Engineering:	$100,000	$100,000	$50,000	$50,000	$25,000	$25,000	$25,000	$25,000
Marketing:	$50,000	$50,000	$40,000	$30,000	$20,000	$20,000	$20,000	$20,000
Depreciation:	$114,320	$195,920	$139,920	$99,920	$71,440	$71,360	$71,440	$35,680
Operating Expenses:	**$264,320**	**$345,920**	**$229,920**	**$179,920**	**$116,440**	**$116,360**	**$116,440**	**$80,680**
Operating Income (EBIT):	**-$19,320**	**$79,080**	**$285,080**	**$250,080**	**$278,560**	**$208,640**	**$138,560**	**$104,320**

Operating Income (EBIT) = Gross Profit – Operating Expenses

Step 5: Calculate Taxes and Net Income…

	Year							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Operating Income (EBIT):	**-$19,320**	**$79,080**	**$285,080**	**$250,080**	**$278,560**	**$208,640**	**$138,560**	**$104,320**
Taxes (@ 21%)	-$4,057	$16,607	$59,867	$52,517	$58,498	$43,814	$29,098	$21,907
Net Income (PAT):	**-$15,263**	**$62,473**	**$225,213**	**$197,563**	**$220,062**	**$164,826**	**$109,462**	**$82,413**

And this pretty much wraps up our Pro Forma Income Statement.

From here we can easily calculate our "Cash Flows from Operations."

Step 6: Calculate the Cash Flow from Operations…

Cash Flows from Operations = EBIT + Depreciation - Taxes

Operating Income

Add Back Depreciation (a non-cash expense)

Taxes Paid

	Year							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Operating Income (EBIT):	-$19,320	$79,080	$285,080	$250,080	$278,560	$208,640	$138,560	$104,320
+ Depreciation Expense	$114,320	$195,920	$139,920	$99,920	$71,440	$71,360	$71,440	$35,680
- Taxes (@ 21%)	-$4,057	$16,607	$59,867	$52,517	$58,498	$43,814	$29,098	$21,907
Cash Flows from Operations	**$99,057**	**$258,393**	**$365,133**	**$297,483**	**$291,502**	**$236,186**	**$180,902**	**$118,093**

Let's take a break and let this sink in…

Credits & References

Slide 1: Making a plan by allvision, Adobe Stock (197977054.jpeg).

Slide 12: Coffee break / Business Symbols by Coloures-Pic, Adobe Stock (70396911.jpeg).