

## **Estimating Prospect Profitability**

**To help in making drilling decisions**

**To obtain investors**

**To secure management approval**



**Collarini Engineering Inc.**

There are many reasons to estimate the profitability of a prospect. To help in making drilling decisions, to attract private investors, and to secure management approval of a project are a few.

## Estimating Prospect Profitability

**Financial, or Profit, Indicators summarize the thousands of detailed cash flow figures to help compare prospect opportunities.**



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We use financial, or profit indicators, to summarize the many detailed cash flow figures which are associated with a prospect opportunity.

## Estimating Prospect Profitability

***Net Cash Flow = Profit***

***Cash in - Cash out***



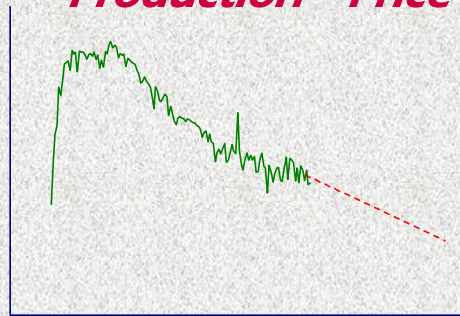
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The fundamental requirement of any prospect is that it is expected to generate a profit. Profit is also called “Net Cash Flow”. It is the net result of all cash inflows less all cash outlays.

## Estimating Prospect Profitability

### *Cash In: Revenue*

*Production \* Price*




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Revenue is what the cash inflow is called. When evaluating prospects, it is the result of the amount of product sold times the unit price. The barrels of oil sold multiplied by the price expected to be received for the oil, for example. To estimate revenue, you must first forecast production, then product price.

## Estimating Prospect Profitability

### *Cash Out: Expenses*

*Royalty*  
*Severance and ad valorem taxes*  
*Lease operating expenses*

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Expenses are usually separated into three categories: Royalty is paid to the lessor as a percentage of the oil and gas removed. Severance and ad valorem taxes are paid to the state and local governments as percentages of oil and gas and percentages of asset values, respectively. Lease operating expenses are the direct costs associated with field operations. Overhead is not generally included, unless the prospect will significantly affect the technical and management costs, such as when a new office must be opened if a discovery is made.

## Estimating Prospect Profitability

### *Cash Out: Investments*



*Bonus  
Drilling and completion  
Platform and facility  
Pipeline and plant*

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Investments include signature bonuses for lease or concessions, the cost of exploration, appraisal and development drilling, and the costs for the facilities to move the hydrocarbons from the reservoir to the market. These may include processing equipment, platforms, plants, and pipelines.

## Estimating Prospect Profitability

***Cash Out: Income taxes***

***Taxable income \* tax rate***



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Income taxes are paid to the government under a set of rules established by individual governing bodies. Often, they are expressed as taxable income multiplied by an income tax rate.

## Estimating Prospect Profitability

### *Prospect Profit (Net cash flow)*

**\$Revenue**  
**\$Expenses**  
**\$Investment**  
**\$Taxes**  
**\$Net Cash Flow**



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In summary, the net cash flow is the revenue, less expenses, less investments, less taxes. It is the cash profit expected to be realized by investing in a prospect.



## Estimating Prospect Profitability

Net cash flow + investment  
investment

*Net  
Cash Flow*

Return on  
Investment

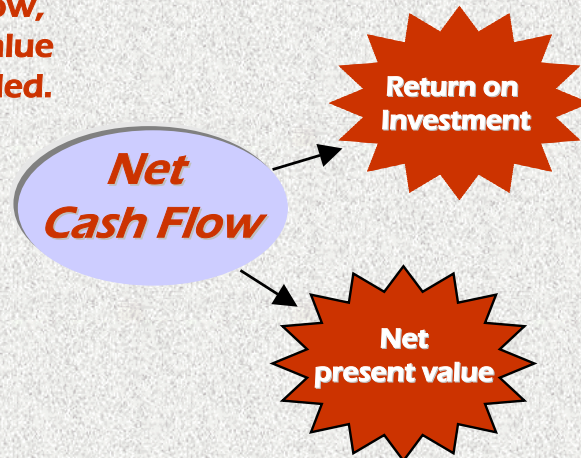


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Just knowing the profit is not enough. It is also important to know the size of the profit compared to the investment it takes to generate that profit. Return on investment is a ratio which tells how many times you expect to earn your investment back.

## Estimating Prospect Profitability

The net cash flow,  
with the time value  
of money included.

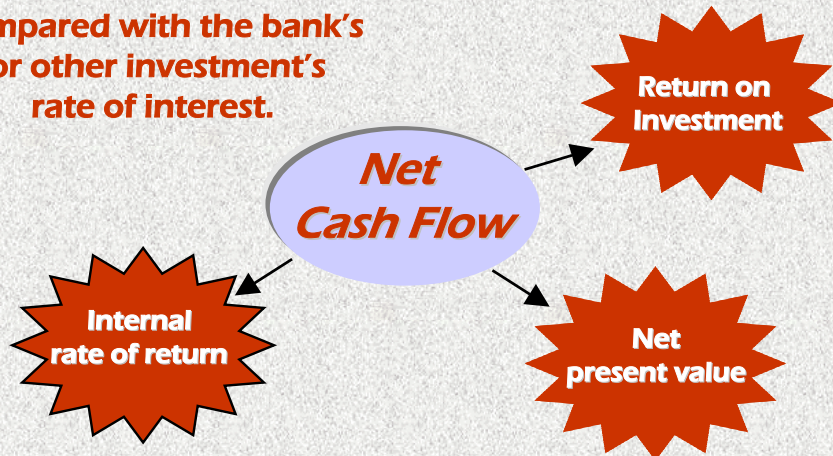


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Another measure of profitability is net present value. It tells you the size of the profits, also accounting for when in time those profits will occur.

## Estimating Prospect Profitability

**This interest rate can be compared with the bank's or other investment's rate of interest.**

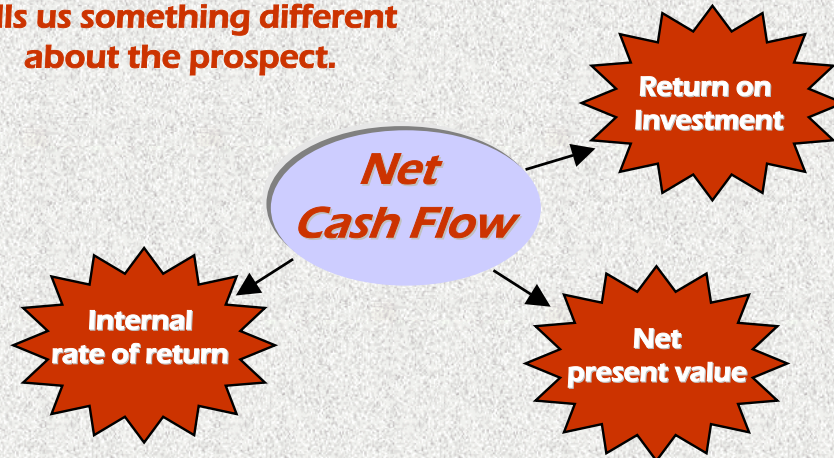


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The internal rate of return equates a series of uneven cash flows you expect to receive in the future to an equivalent rate of interest which can be compared directly to that of a bank. It is useful, because all money we use in investing in prospects has a cost, whether it is from borrowing and paying interest or from taking equity money from our own savings or from investors.

## Estimating Prospect Profitability

Each financial indicator tells us something different about the prospect.



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Each financial indicator helps characterize a prospect to help compare it to other opportunities we may have to invest.



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Royalty	0.25	Severance Tax Oil	0.125	Severance Tax Gas	0.05
Discount Rate	0.15				

ITEM / YEAR	Timing*	1999	2000	2001	2002	2003	2004	2005	2006
Oil Prod, MBLS		0.0	143.0	104.0	67.9	44.4	29.0	11.7	
Net Oil, MBLS		0.0	107.3	78.0	50.9	33.3	21.8	8.8	0.0
Oil Price, (\$/BBL)		0.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Oil Revenue, \$M		-	2,145	1,560	1,019	666	435	176	-
Gas Prod, MMCFG		0.0	114.4	83.2	54.3	35.5	23.2	9.4	0.0
Net Gas, MMCFG		0.0	85.8	62.4	40.7	26.6	17.4	7.0	0.0
Gas Price, (\$/MCF)		0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Gas Revenue, \$M		-	171.6	124.8	81.5	53.3	34.8	14.0	-
Total Revenue, \$M		-	2,317	1,685	1,100	719	470	190	-
Severance Tax Oil		0	268	195	127	83	54	22	0
Severance Tax Gas		0	9	6	4	3	2	1	0
Ad valorem Tax		0	0	0	0	0	0	0	0
Operating Exp, M\$			264	264	264	264	264	150	0
Other Exp, M\$								100	
Net Before Inv		0	1,776	1,220	705	369	150	-83	0
Bonus, \$M	0	100							
Tangible Inv, M\$	1	160							
IDC, M\$	1	340							
Intang Other, M\$	1	0							

At Collarini Engineering, we have developed a simple spreadsheet that calculates the cash flow by year from your inputs. It is limited to two investments, but you may expand it to accommodate your own prospect.

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ITEM / YEAR	Timing*	1999	2000	2001	2002	2003	2004	2005	2006
Oil Prod, MBLs							29.0	11.7	
Net Oil, MBLs							21.8	8.8	0.0
Oil Price, (\$/BBL)							1.00	20.00	20.00
Oil Revenue, \$M							435	176	-
Gas Prod, MMCFG							23.2	9.4	0.0
Net Gas, MMCFG							17.4	7.0	0.0
Gas Price, (\$/MCF)							2.00	2.00	2.00
Gas Revenue, \$M							34.8	14.0	-
Total Revenue, \$M							470	190	-
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**Operating Costs**

Operating expenses are the cash outlays expended in the daily operation and maintenance of production from a lease, field or other area of operation. Operating expenses include, but are not limited to, fuel, salaries of field personnel, chemicals, equipment rental, outside services, and so on.

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OK

It is also a learning tool: by clicking on any of the gray description buttons, you may read an explanation of that topic.


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Bonus, \$M	0	100							
Tangible Inv, M\$	1	160							
IDC, M\$	1	340							
Intang Other, M\$	1	0							
Net BFIT		-600	1,776	1,220	705	369	150	-83	0
Income Tax, \$M		-104	647	441	249	125	45	-42	0
Net Cash Flow, \$M		-496	1,129	779	456	245	104	-42	0
Cum Cash Flow, \$M		(496)	634	1,412	1,868	2,113	2,217	2,175	2,175
Profit Indicators		Total Inv	Net Cash Flow	Payout	Profit Ratio				
		600	2,175	1.4	3.63				

It also calculates the indicators of profitability that most companies use to make investment decisions.



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