NOC Breakeven Costs 2011-2013

CNOOC, Ecopetrol, Petronas, Rosneft, Sinopec, StatOil, PdVSA, Petrobras,
PetroChina, Pemex, ONGC

NOC Sample Characteristics

- Companies represented 23-24% of EIA World Oil Production 2011-2013
- Companies’ oil production was 73% of total production 2011-2013
- Companies’ reserve replacement ratio 2011-2013 was 192% due to large acquisitions by CNOOC, Petronas and Rosneft
- High quality financial and operational reporting (SEC Form 20Fs or comparable)
- Companies exploration and production segment EBIT averaged 105% of total EBIT in 2013
- 10 companies’ long term debt/equity averaged 35% in 2013; Pemex had negative equity
### NOC Breakeven Costs ($/BOE)

<table>
<thead>
<tr>
<th>Finding &amp; Development Costs (3 Year Rolling Average)</th>
<th>Annual Cash Operating Expenses</th>
<th>Annual Fiscal Contribution to the State</th>
<th>Annual 10% ROI OR Annual Capital Expenditures</th>
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</table>
| (Total $ Costs Incurred for Exploration, Development & Acquisitions)/(BOE Net Revisions, Extensions & Discoveries, Enhanced Recovery & Acquisitions) | • Production Costs  
• G & A and Marketing  
• Other Operating Expenses  
• Net Financial Expense | • Production Taxes  
• Cash Income Taxes  
• Estimated Price Subsidies (refining losses)  
• Dividends to state  
• Social/economic development expenses | • (Find. & Dev. Costs + Cash Op. Exp. + Fiscal Contribution) * 10%  
OR  
• Total $ Costs Incurred for Expl., Dev. & Acq. |

### Weighted Average NOC Breakeven Costs* ($/BOE)

![Bar Chart]

- 2011: $65  
- 2012: $76  
- 2013: $81

*10% ROI represented 30% of capital expenditures 2011-2013.
Weighted Average NOC Breakeven Costs ($/BOE)

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<tbody>
<tr>
<td>2011</td>
<td>$76</td>
<td>17.09</td>
<td>39.43</td>
<td>6.21</td>
</tr>
<tr>
<td>2012</td>
<td>$94</td>
<td>43.29</td>
<td>16.63</td>
<td>13.04</td>
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<tr>
<td>2013</td>
<td>$101</td>
<td>41.32</td>
<td>17.50</td>
<td>12.9</td>
</tr>
</tbody>
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NOC Breakeven Costs 2013 ($/BOE)

- Cap. Exp.
- Fiscal Contribution
- Find. & Dev. Costs

*Ecopetrol production taxes included in production costs

**CNOOC capital expenditures increased from $12 billion in 2012 to $41 billion