



PPSDM Jakarta, November 3rd, 2017

Company decision-making for geothermal projects

(GEOCAP course 1.07)

Topic: Trading-off long term vs. short term objectives, some lessons from the oil/gas E&P industry

Lecturer - Ir. Christian Bos

Public document (GEOCAP-2016-REP-TNO-1.07-xx)

During the early 90s emphasis shifted from "long term" to "short term" focus

Long Term indicators

Value of company

- NPV of cashflow

(in E&P: SMOG)

- Value of goodwill

Reserves

- R/P ratio
- Replacement ratio

Short Term indicators

Annual profit

- ROACE

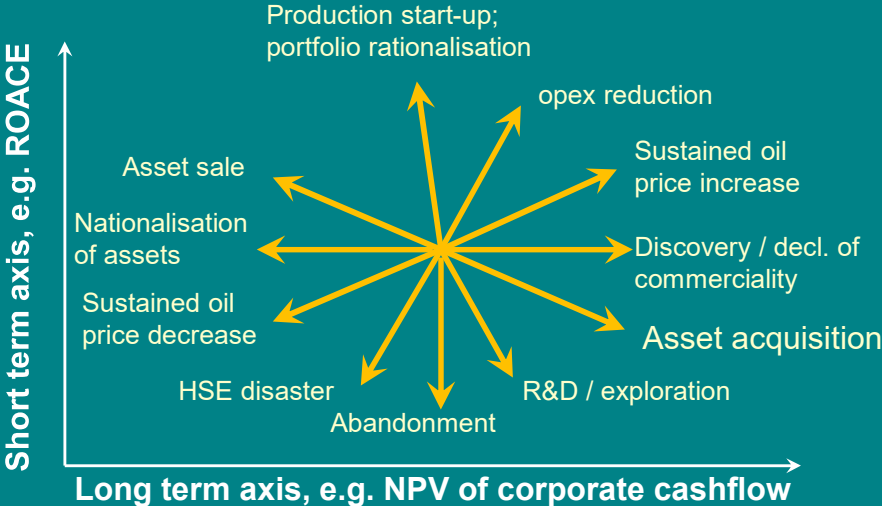
Annual cashflow

- Revenues
- Opex
- Capex

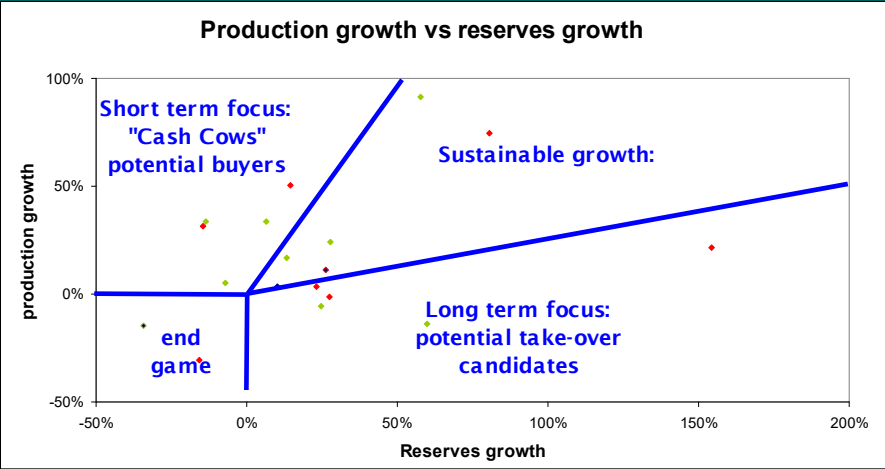
Annual production

- Oil
- Gas

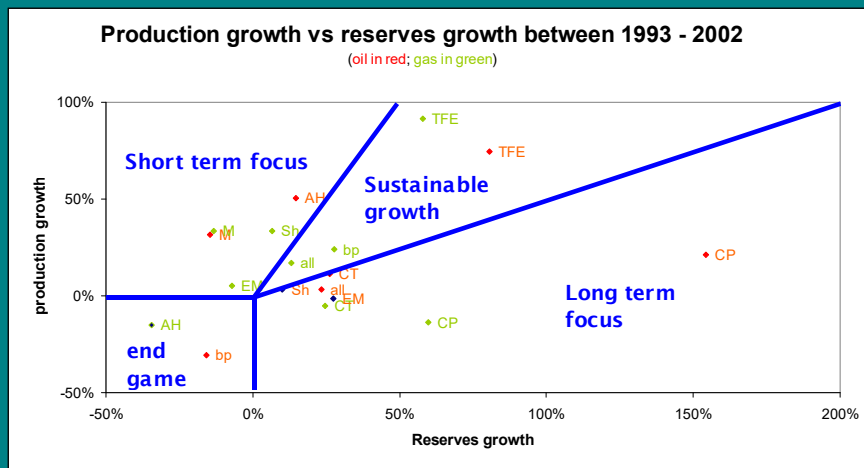
Effect of actions in 2 dimensions



Company strategies in “long term vs. short term” plane



The companies* in “long term vs. short term” plane



*Data from Prudential report on Exploration & Production Results, July 2003

26/10/2017



5

Pros and cons of E+A+D vs. asset acquisition

Explore & Appraise & Develop

Pros:

- Steady E&A budget
- Available technical skills can be used to advantage

Cons:

- Long lead times
- Undeveloped reserves unattractive to shareholders
- Can become take-over candidate

Acquiring reserves

Pros:

- Low cost in the early phases
- Short pay-out times
- Technical staff can be downsized

Cons:

- Reserves may not be for sale when needed
- Corporate fit could be problematic
- Reversal to E&A&D difficult

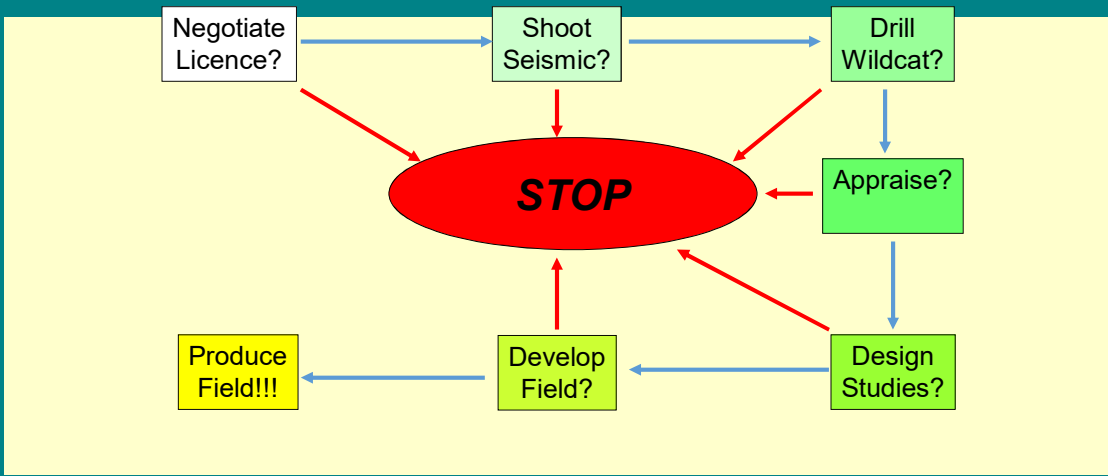
26/10/2017



6

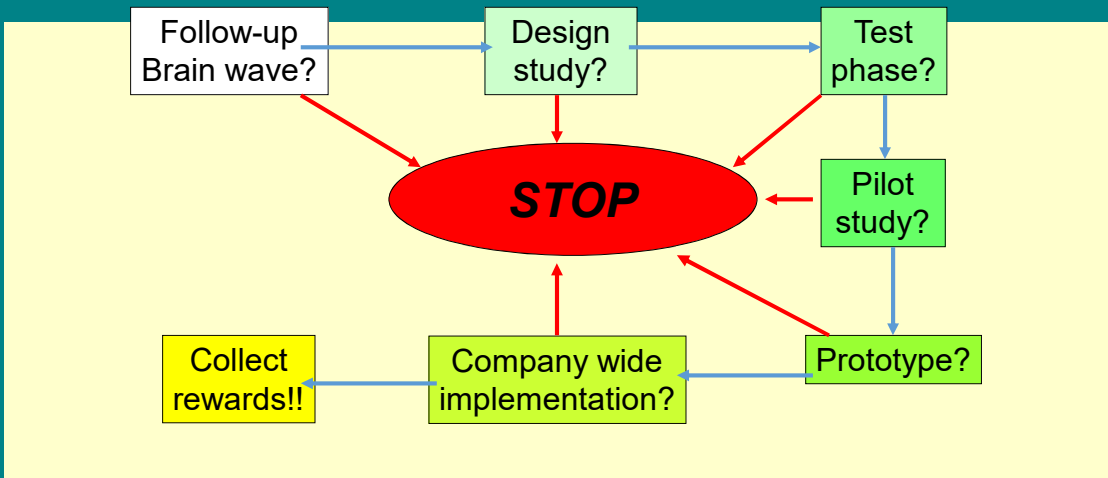
The exploration lottery:

Winning one lottery only gives access to the next, more expensive lottery



The New Technology Gamble:

3000 ideas result in one winner



Modern, commercially-minded oil executives are less inclined to explore and to invest in R&D

Exploration

- Hard to justify economically
"Greenfield" exploration often has negative EMVs
Have we reached the "end game" for oil exploration?
- Long lead times
- Staff intensive

Acquiring developed reserves from 3rd parties is more attractive

R&D

- Hard to justify economically
Odds are against "Fundamental research"
- Long lead times
- Staff intensive
- Benefits short lived

Fast implementation of NT from elsewhere is more attractive

26/10/2017



9

The potential consequences

Exploration

- Less exploration results in less world wide reserves, impacting future oil prices
Higher oil prices in the medium term
- Major Resource Holders will explore to maintain R/P ratios
Higher dependence on current MRH's

R&D

- Less R&D reduces future reserves and increases technical costs
Eventually higher oil prices
- Contractors will increase their R&D efforts thus strengthening their competitive edge
Diminished role for multinationals

26/10/2017



10

Who will drive the E&P business in future?

Oil companies

pros

- **Rich**
can afford to take risks
- **Infrastructure**
have outlet for oil and gas

cons

- **Hands-on experience diminishing**
- **Vulnerable to pressure groups**
Tied to local assets
Impact on downstream
Deep pocket syndrome

Contractors

pros

- **Hands-on experience**
- **Latest technology**
- **Low profile**
- **Job orientated**
are there where the work has to be done

cons

- **Conflict of interest**
Oil companies are customers!
- **No outlet for hydrocarbons**

26/10/2017



11

Food for Thought Oil companies, beware of

- Setting too high production targets
 - **Joint oil production of majors increased only 0.3% per year**
 - **More ambitious targets over extended periods difficult to achieve without acquisitions**
- "Synergy" with mergers and acquisitions
 - **Developing positive synergy takes time and corporate fit**
- Ageing infrastructure
 - **Develop satellites before it is too late**
- Losing technical expertise
 - **The best defence against ambitious contractors**
 - **The road to implementation of New Technology**

26/10/2017



12