Negotiating Production Sharing Agreements (PSAs) and Joint Operating Agreements (JOAs)

Workshop

May 22th, 2014

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Global growth. Guaranteed.
Boston Strategies International

Custom Market Analytics for Engineered Products and Services – a market intelligence solution that saves buyers money and helps them avoid costly mistakes by recommending timely procurement actions and technology strategies.

- MarketOutlook.com
- Supply risk mitigation model
- Supplier Optimization Model

Establishment of Capital Equipment Supply Partnerships – a proven process that accelerates the alignment between world-class, proven suppliers, and buyers that need local content for major capital projects in emerging markets.

- OGPNetwork

Organization Design and Development - training and development workshops and programs.
Purpose of the Workshop

Negotiating Joint Operating Agreements (JOAs) and Production Sharing Agreements (PSAs)

- Establishing principles of engagement and governance structures
- Formulating negotiation positions and strategies
- Achieving non-price advantages through deal structures, risk sharing mechanisms, and decision-making processes
- Negotiating financial and legal parameters
- Managing unexpected outcomes and contract disputes
# Agenda

<table>
<thead>
<tr>
<th>Topic</th>
<th>Format</th>
<th>Time (min.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managing Risk in E&amp;P Operations</td>
<td>Presentation</td>
<td>10</td>
</tr>
<tr>
<td>Mitigating Risk in License, Concession, PSA, and Service Contracts</td>
<td>Presentation</td>
<td>10</td>
</tr>
<tr>
<td>Deciding Between a PSA, Concession, and a Service Agreement</td>
<td>Discussion</td>
<td>10</td>
</tr>
<tr>
<td>Exercise: Negotiating a PSA</td>
<td>Role Play</td>
<td>45</td>
</tr>
<tr>
<td>Coffee Break</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Minimizing Risk in JOAs</td>
<td>Presentation</td>
<td>25</td>
</tr>
<tr>
<td>Conclusion</td>
<td>Presentation</td>
<td>5</td>
</tr>
</tbody>
</table>

Note: This slide deck also contains information about Boston Strategies International at the end.
Managing Risk in E&P Operations
Macro Risks in Petroleum Contracts

**Risk Factor**
- Capital at Risk
- Local Content Requirements
- Challenging Physical Location
- Geopolitical Location
- Security
- Unclear Organizational Structure
- Lack of Experience in Host Country
- Lack of Experience with JOA Partners
- Quality of Information, incl. Seismic
- Economic Instability

**Potential Consequence**
- High Financial Stakes
- High Costs, Low Margins
- Potential for Failure, Blowout, etc.
- Expropriation
- Default / Breach of Contract
- Unenforceability
- Loss of Life
- Lawsuits
- Greater Chance of Disputes
- High Cost of Litigation
- Delays
- Cost Overruns
- Disputes
- Delays
- Output Below Expectations
- Cost Overruns
- Exchange Rate Risk
Types of Risk

Categories of Risk

- Operational
- Economic
- Environmental
- Financial
- Legal
- Health
- Safety

Source: Boston Strategies International
Strategic Approaches to Managing Risk in E&P Operations

**AVOID**
- Reduce project activity (fewer or smaller projects)
- Avoid countries or areas that have high physical, geopolitical, economic, or security risks
- Pass risk on to investors
- Conduct thorough due diligence and invest in extra data

**DIVERSIFY**
- Take on a wider array of projects
- Add more consortium partners

**HEDGE**
- Financial hedging
- Portfolio balancing

**MINIMIZE**
- Rely on previous experience and previous partners (company-specific and situation-specific)
- Clarify potential scenarios, contingencies in advance (‘‘Governance’’)
- Lock in all variables (e.g., supply and demand contracts) in advance through contractual guarantees (‘‘Negotiation’’)

5/23/2014
Mitigating Risk in License, Concession, PSA, and Service Contracts
## Service Contract, Concession, or PSA?

### Qualitative and Exogenous Determinants of the Optimal Structure in Special Cases

<table>
<thead>
<tr>
<th>Special Cases</th>
<th>Preferred Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Service Contract</td>
</tr>
<tr>
<td>Government inexperience</td>
<td>▲</td>
</tr>
<tr>
<td>Existence/ competency of NOC</td>
<td></td>
</tr>
<tr>
<td>Previous experience with PSAs</td>
<td></td>
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<tr>
<td>Government need for short-term revenue</td>
<td></td>
</tr>
<tr>
<td>Government need for foreign reserves</td>
<td></td>
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<tr>
<td>Lack of oil &amp; gas know-how</td>
<td>▲</td>
</tr>
</tbody>
</table>
Comparison Between Legal Structures of Licenses, Concessions, PSAs, and Service Agreements

- **License:**
  - IOC pays a fixed fee
  - IOC takes ownership of the oil at the wellhead
  - License fee is non-negotiable
- **Concession**
  - IOC bids on the concession
  - IOC owns the resource
- **Service Contract**
  - IOC manages E&P activities for an agreed fee
  - IOC has control over operations
  - NOC owns the resources
- **PSA / JV**
  - IOC bids on the PSA
  - IOC and NOC jointly own the resource
  - IOC bears risk of dry holes

### Characteristics of the Major Forms of Petroleum Contract

<table>
<thead>
<tr>
<th></th>
<th>Ownership of the Oil</th>
<th>Control of Operations</th>
<th>Main Compensation Mechanism</th>
<th>Complexity</th>
</tr>
</thead>
<tbody>
<tr>
<td>License</td>
<td>IOC</td>
<td>IOC</td>
<td>License Fee</td>
<td>Basic</td>
</tr>
<tr>
<td>Concession</td>
<td>IOC</td>
<td>IOC</td>
<td>Concession Fee</td>
<td>Moderate</td>
</tr>
<tr>
<td>PSA / JV</td>
<td>NOC / Joint</td>
<td>Joint</td>
<td>Royalty, Taxes</td>
<td>Complex</td>
</tr>
<tr>
<td>Service Contract</td>
<td>NOC</td>
<td>IOC</td>
<td>Fee</td>
<td>Simple</td>
</tr>
</tbody>
</table>
Basic Variables and Risks in Each Type of Agreement

- PSAs have the greatest risk potential of any type of agreement due to the number of economic variables.

**Production Sharing Agreement (PSA)**
- NOC share of “profit oil” (e.g., 60%, often progressively increasing with amount of oil produced)
- Government royalty percentage (e.g., 10%)
- Percent “cost oil” of annual production (e.g., 50%)
- Corporate Income tax rate (e.g., 30%)
- Duration of exploration phase (e.g., 10 years)
- Duration of the production phase (e.g., 30 years)
- Bonuses (signature, discovery, production), e.g., $1m, $5m, $10m)
- Additional optional NOC participation in the operation (e.g., 25%)
- Minimum drilling obligations (e.g., 5 wells)
- Stabilization (e.g., changes only by mutual agreement)
- Dispute resolution mechanism (e.g., arbitration, litigation, or mediation)
- Other taxes and duties (e.g., excise tax, petroleum tax, import/export duties)
- Tax and duty holidays (e.g., 5 years)
- Relinquishment (e.g., 7 years or abandonment)
- Local employment / local content (e.g., <$200k)

**Service Agreement**
- Operating fee

**Concession**
- Purchase price
- Government royalty percentage
- Income tax rate
# Primary Variables and Risks in Service Agreements and Concessions

## Service Agreements

<table>
<thead>
<tr>
<th>Variable</th>
<th>Risks</th>
<th>Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Fee</td>
<td>• Poor geological data</td>
<td>• Pad the fee to allow a buffer for unexpected conditions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Add contractual contingencies for unexpected geophysical conditions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cost-plus rather than fixed fee</td>
</tr>
</tbody>
</table>

## Concessions

<table>
<thead>
<tr>
<th>Variable</th>
<th>Risks</th>
<th>Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase Price</td>
<td>• Poor geological data</td>
<td>• Extra seismic surveys, data</td>
</tr>
<tr>
<td>Government Royalty Percentage</td>
<td>• Too high; not enough profit left to cover depreciation / investment recovery</td>
<td>• Abandon the field (may be limited by relinquishment rules)</td>
</tr>
<tr>
<td>Income Tax Rate</td>
<td>• Too high: after-tax profit lower than at other opportunities</td>
<td></td>
</tr>
</tbody>
</table>
## Primary Variables and Risks in PSAs

<table>
<thead>
<tr>
<th>Primary Variable</th>
<th>Risks</th>
<th>Mitigation Measures</th>
</tr>
</thead>
</table>
| Government Royalty Percentage                | - Too high; not enough profit left to cover depreciation / investment recovery | - Compensate with other variables  
- Adjust term structure  
- Apply caps |
| Income Tax Rate                               | - Too high: after-tax profit lower than at other opportunities        |                                                                                      |
| E&P Costs included in “Cost Oil”             | - Unreasonable expenses allocated to “cost oil”  
- Actual costs may exceed the allowed amount | - Clarify valid “cost oil” expenses  
- Refine milestones that separate “cost oil” from “profit oil”  
- Carry forward expense to next period |
| % Cost Recovery Oil of Annual Production     | - May be too low to cover risk and expenses                           | - Adjust “cost oil” % of total  
- Max and/or Min values |
| Government/Oil Company percent split of “profit oil” | - Excessive NOC %: after-tax profit lower than at other opportunities | - Offset with other variables |
## Primary Variables and Risks in PSAs (cont’d)

<table>
<thead>
<tr>
<th>Primary Variable</th>
<th>Risks</th>
<th>Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exogenous Event Unforeseen in the Agreement</td>
<td>• Dispute once PSA is in effect</td>
<td>• International arbitration provision</td>
</tr>
<tr>
<td>Economical Reserves</td>
<td>• Less economically recoverable reserves than anticipated</td>
<td>• Decrease NOC participation</td>
</tr>
<tr>
<td>Political / Sovereign stability</td>
<td>• Regime change</td>
<td>• Spell out “no changes” in the contract</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Contract with a separate entity (SOE/NOC) from the government</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• JV rather than PSA</td>
</tr>
<tr>
<td>Price of oil</td>
<td>• Low oil price leads to non-exploration</td>
<td>• Relinquishment clause</td>
</tr>
</tbody>
</table>
PSAs – Additional Variables

- Royalty determination point
- Payments In Kind
- Sliding Scales
- Maxes, Mins, and guarantees
- Intercompany transfer prices (for oil sold as well as services / works provided)
- Regional oil price benchmark
- Environmental regulations, and voice in setting environmental standards
- Exploration expenditure commitments
- Foreign currency exchange and repatriation of profits
- Insurance requirements

- Dispute clause elements
  - Broad Form Clause
  - Arbitral Rules
  - Arbitrator Appointment
  - Seat of Arbitration
  - Choice of Law
  - Language of dispute resolution
  - Confidentiality
  - Consent to Judgment
  - Multi-Step Clause
Discussion: Deciding Between a PSA, Concession, and a Service Agreement
Exercise: Negotiating a PSA
Minimizing Risks in JOAs
JOA Project Management Model to Mitigate Risk

**Appraise**
- Screen ideas
- Conduct early feasibility analysis
- Gather, evaluate seismic data
- Apply stage-gate criteria

**Select**
- Evaluate Alternatives, Go/No-Go Decision
- Conduct workshops with partners to align on risk tolerance (“Transparency”)

**Define**
- Establish governance structures
- Hire a third party (investment bank) to scout for and prescreen partner investors
- Use the latest AAPL or AIPN JOA template
- Segregate duties in partner relations

**Build Capability**
- Develop Bid Packages, Competitive or Negotiated Tendering, Bid Evaluation
- Organize / Procure Assets & Services
- Gain-share with oilfield service providers

**Deploy Resources**
- Construct civil works, install equipment Commissioning
- Participate in JV management even if a minor shareholder
Architecting JOAs to Minimize Risk

• Diversify
  • Diversification of client base
  • Diversification of geographies
  • Prequalification of JV opportunities based on geopolitical factors
  • Hybrid contract form (lump sum/convertible/reimbursable)

• Plan
  • Map out government restrictions
  • Primavera project management

• Standardize & Document
  • JOA template
  • Documented project management handbook

• Organize
  • Clear leadership authority of one JV partner ("Dominant player")
  • Corporate separateness; Arms’ length relations with partners
  • Finite duration joint ventures (e.g., 25 years)
  • Cost of design changes explicitly addressed in the JOA
  • Gain-sharing of change order benefits
  • More flexible contract for smaller fields

• Institute Checks & Balances
  • Detailed Authority matrix (Delegation of Authority)
  • Multiple layers of approval
  • Explicit sign-offs
  • Multi-layer internal audit
  • 360 feedback
Exercise: Negotiating a JOA
Appendix: About BSI
Our Capabilities

- Economists
- Statisticians
- Database Managers
- IT Staff
- Technical Experts
- Oilfield Engineers
- Purchasing Agents
- Operations Consultants
- Interim Managers

- Econometric Modeling
- Cost Engineering
- Routing
- Inventory Management
- Sales & Operations Planning
- Demand Planning
- Debottlenecking
- Preventive Maintenance
- Work Scheduling

- Site Location
- Demand Planning
- Strategic Sourcing
- Purchasing
- Inbound Logistics
- Production
- Inventory Management
- Warehousing
- Distribution

- Measurement and Metrics
- Organization Design
- Cost Reduction programs
- Reliability and Uptime programs
- Customization programs
- New Project or Product Development programs
- Risk Management
Our Services

- **Custom Market Analytics for Engineered Products and Services** – a market intelligence solution that saves buyers money and helps them avoid costly mistakes by recommending timely procurement actions and technology strategies.
  - MarketOutlook.com
  - Supply risk mitigation model
  - Supplier Optimization Model
- **Establishment of Capital Equipment Supply Partnerships** – a proven process that accelerates the alignment between world-class, proven suppliers, and buyers that need local content for major capital projects in emerging markets.
  - OGPNetwork
- **Organization Design and Development** - training and development workshops and programs.
Our Benefit: 30% cost savings*

- Project savings exceed 10% on average
  - 2-5% on total corporate opex, 2-7% on project capex
  - Combining initiatives can yield up to triple this.

BSI Proven “Should-Cost” Approach and Methodology

- on Economic Value Added. More detail on BSI website (www.bostonstrategies.com)
Our References

• "As always, your work is first class." -- Chief Procurement Officer
• "Brilliant…outstanding analytical capabilities…a remarkable company that delivers differentiating value to its customers.” -- Manager, Global Supply Chain Solutions Provider
• "Excellent. Invaluable in supporting our planning." -- Procurement Strategy Director
• "Boston Strategies did an outstanding job on our supply chain strategy project…their research and recommendations were thorough and data-driven…great results, expertise, and high integrity." -- Director of Supply Chain
• "Our negotiations have gone very well. Your assessments were spot on." -- Capital Acquisition Strategist
• "Incredible research capabilities and current knowledge of market conditions." -- Finance and Systems Manager
• "Exactly what we were looking for." -- Global Procurement Policy Coordinator
• "The right mix of academic background and hands-on experience to get the job done." -- Director of Supply Chain Planning, Equipment Manufacturer
• "Amazing depth in multiple facets of materials management." -- Global Sourcing Manager, Equipment Manufacturer
PRELIMINARY DRAFT

Financial Benefits Realized

- T% lower operating cost
- 2% less inventory holding cost
- 10% lower freight cost of most capital investments
- 30%+ higher profit from more capacity and from new

Operational Benefits Realized

- Development of newer technologies
- Time reduction
- Smaller footprint of supplier capacity
- Faster delivery of equipment by identifying

Project Approach

- Online services, calculations, and tools
- Quarterly reports
- Surveys, communications, and tools
- Primary and secondary market intelligence
- Economic modeling and forecasting

Why BSI Was Selected

- Business and targets, measurable improvement every
- Over 25 years of experience, improvements
- Proven accuracy and reliability
- Clean, simple, and effective
- Thought Leadership
- Research/Consulting Services
- Leading-edge analytics
- Forecasting numbers
- Demand

Key Challenges

- Why BSI was selected due to
- Complementary and other technologies
- Experience in the industry
- Lower production times and pressures
- Significance in the energy sector
- Long-term relationships with government and clients
- Supplier price increases cost inflation

Supply Risk Mitigation Service

<table>
<thead>
<tr>
<th>Service</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle East</td>
<td>Location</td>
</tr>
<tr>
<td>Location</td>
<td>Location</td>
</tr>
<tr>
<td>Tonnes of thousands</td>
<td>Employees</td>
</tr>
<tr>
<td>Over $10 Billion</td>
<td>Revenue</td>
</tr>
<tr>
<td>Oil and Gas</td>
<td>Industry</td>
</tr>
</tbody>
</table>

ABOUT THE CLIENT

- Global Program Policy Coordinator
  - Exactly what we were looking for.
  - Capital Acquisition Director
  - Your assessments were spot on.

Supply Risk Analyses and Mitigation Case Study

Boston Strategies International

About the Client