COMPARATIVE ANALYSIS OF FISCAL REGIMES IN AMERICAN COUNTRIES

CGEF – JANUARY 16, 2019
WHY AMERICAS?

- PROMISING GEOLOGY IN UNDER EXPLOITED PROVEN BASINS AND FUTURE BASINS
- UNCONVENTIONAL TARGETS
- REASONABLY STABLE POLITICAL INSTITUTIONS
- ESTABLISHED INFRASTRUCTURE AND MARKET
- CULTURAL AND HISTORICAL SIMILARITIES WITH CANADA
THE "AMERICAS"

**UNITED STATES**
- Oil & gas reserves: 116,412.98 (mmbbl)
- CAGR: 5.73%
- Oil & gas production: 25.076.34 (thousand bopd)
- Active E&P companies: 1,572
- 51% oil production, 49% gas production

**COLOMBIA**
- Oil & gas reserves: 3.101 (mmbbl)
- CAGR: 4.14%
- Oil & gas production: 1,185.24 (thousand bopd)
- 85% oil production, 15% gas production

**PERU**
- Oil & gas reserves: 3,847.5 (mmbbl)
- CAGR: 6.47%
- Oil & gas production: 314.09 (thousand bopd)
- 36% oil production, 64% gas production

**BOLIVIA**
- Oil & gas reserves: 2,023.00 (mmbbl)
- CAGR: 8%
- Oil & gas production: 325.80 (thousand bopd)
- 10% oil production, 90% gas production

**ARGENTINA**
- Oil & gas reserves: 4,335.00 (mmbbl)
- CAGR: 1.34%
- Oil & gas production: 1,325.11 (thousand bopd)
- 52% oil production, 48% gas production

Modified from Going Global Phase 3
WHICH FISCAL REGIMES?

- ARGENTINA
- BOLIVIA
- BRAZIL
- CANADA
- COLOMBIA
- MEXICO
- PERU
- USA

For countries with Multiple royalty Regimes, used typical or average case or ran sensitivities (MEXICO)
Every country has a unique blend of royalty’s, taxes, sharing contracts, etc.

CAPEX and OPEX not necessarily comparable
- Surface geography/topography
- Infrastructure
- Geology and Reservoir types
- Currency, taxes, ….
METHODOLOGY

• Assume, outside of government take, cashflow is the same for each country.

• Go with single oil model with uniform
  – Capex
  – Opex
  – Reserves
  – Production profile
  – Pricing

• Make fiscal regime the only variable

• Multiple fiscal regimes available in each country. Used representative sample.
METHODOLOGY (2)

POINT OF VIEW OF AN MODEST, INCREMENTAL OIL PROPERTY, not entire company.

Costs included:

- Land acquisition costs
- Pre-production operations
- Seismic
- Exploration Drilling
- Appraisal Drilling
- Production Facilities
- Operating costs
- Well and facility abandonment costs with modest amount for reclamation
- Taxes

Costs not included:

- Salvage and extraordinary reclamation
- G&A
- Other sunk costs not associated with the property (eg: dry holes).
- Land retention costs
CONVENTIONAL PLAY LIFE CYCLE

Initial Investment

Prospect
↓
Prospective Resources

Discovery
↓
Contingent Resources

Project
↓
Reserves

FDP
CASE USED

- Initial Investment
  - Bidding to acquire to block
    - Bonus paid 1\textsuperscript{st} year
    - Company operation
  - Seismic acquisition
    - Acquisition 1\textsuperscript{st} Year
    - Processing 2\textsuperscript{nd} Year
  - Drill a well
    - 3\textsuperscript{rd} year
  - Testing
    - 3\textsuperscript{rd} year
VOLUMES AND DEVELOPMENT

- Block Area: 100 km$^2$
- Volumes Discovered
  - 10 MMbbls OOIP
  - 5 MMbbls Technical Recoverable (50% RF)
- Field Development Plan
  - Install Facilities 4$^{th}$ year
  - Built 10 km oil pipeline 4$^{th}$ year
  - Start production
  - Drill two more wells (Total of 3 producers) 5$^{th}$ and 6$^{th}$ year
  - Drill one water disposal well
PRODUCTION PROFILE

PRODUCTION PROFILE (Mbbls)

Oil per year
Cumulative Oil

GLJ PETROLEUM CONSULTANTS
## CAPEX AND OPEX

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
<th>Value (M$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Block Acquisition</td>
<td>1,000</td>
</tr>
<tr>
<td>1</td>
<td>Company Operation</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>Company Operation</td>
<td>100</td>
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<tr>
<td>2</td>
<td>Seismic Acquisition</td>
<td>3,000</td>
</tr>
<tr>
<td>2</td>
<td>Seismic Processing</td>
<td>500</td>
</tr>
<tr>
<td>3</td>
<td>Company Operation</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>Drill Exploration Well &amp; Testing</td>
<td>5,000</td>
</tr>
<tr>
<td>4</td>
<td>Company Operation</td>
<td>500</td>
</tr>
<tr>
<td>4</td>
<td>Install Facilities</td>
<td>10,000</td>
</tr>
<tr>
<td>4</td>
<td>Build 10 km Pipeline</td>
<td>5,000</td>
</tr>
<tr>
<td>4</td>
<td>Tie-in Well 1 and Start Production</td>
<td>500</td>
</tr>
<tr>
<td>5</td>
<td>Company Operation</td>
<td>1,000</td>
</tr>
<tr>
<td>5</td>
<td>Drill and Tie 2nd Well</td>
<td>5,000</td>
</tr>
<tr>
<td>5</td>
<td>Drill Water Injector Well</td>
<td>5,000</td>
</tr>
<tr>
<td>6</td>
<td>Drill and Tie 3rd Well</td>
<td>5,000</td>
</tr>
<tr>
<td>6</td>
<td>Company Operation</td>
<td>1,000</td>
</tr>
</tbody>
</table>

- $100,000/year (1-3 year)
- $500,000/year (4 year)
- $1,000,000/year (5 year -->)
- $10,000/well-month
- $5.0/bbl-oil
- $0.25/bbl-water
- $10.0/bbl-oil Transportation
- $250,000/well Abandonment
- $100,000/well Reclamation
- $500,000 Abandonment Facilities

Facilities

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INCOME TAXES

• Income Taxes can as complex as you want to make them.

• YE reserves evaluator’s approach was used

• Depreciation rates vary by class of capital and country.
  – No specifics presented in this presentation, but used rates observed in our Evaluation work and from published sources.
USA
USA – OIL AND GAS BASINS

Taken from Going Global Phase 3
USA – FISCAL FRAMEWORK

The fiscal regime that applies to the oil and gas industry in USA consists of:

- **Corporate income tax**
  - Federal: 21% (January 2018. It was 35% in 2017)
  - State: 0% to 12% (depending on the State)
  - Alternative Minimum Tax (AMT) eliminated as of January 2018

- **Severance tax**
  - State tax imposed on the extraction of non-renewable natural resources that are intended for consumption in other states

- **Royalties**
  - Onshore: 12.5% to 30%
  - Offshore: 18.75% effective for 19 March 2008 auction, 16.667% in certain previous lease auctions and 12.50% for older leases
USA – FISCAL FRAMEWORK

• Investment Incentives
  – Exploration
    • Intangible Drilling & Development Costs (IDC) are immediately deductible for income tax purposes for independent producers, and 70% for integrated producers
  – Tax Losses can be carried forward for 20 years
  – Regional incentives
    • Waiving production and/or property taxes for marginally production properties
  – Manufacturing Deduction
    • 6% for the oil and gas industry
  – Investment Tax Credit: 14% for R&D expenditures (on expenses in the excess of 50% of the three prior years’ average expenditures)
USA (TEXAS)

CASH DISTRIBUTION (MM$)

- Royalty: 110 (36%)
- OPEX: 56 (18%)
- CAPEX: 63 (21%)
- Taxes: 43 (14%)
- Company: 32 (11%)
MEXICO
1. **Licensing contracts**
   - Investors may be granted licenses offering the possibility of transferring oil to private companies once the hydrocarbons have been extracted with the right to market such hydrocarbons

2. **Production sharing contracts (PSC)**
   - Production is divided between the State and the private companies

3. **Service Contracts**
   - The contractor is obliged to provide services to the State in exchange of a consideration in cash
The fiscal regime that applies to the oil and gas industry in Mexico consists of:

- **Corporate income tax**
  - Federal: 30%

- **Government take (depends on the contract)**
  - Up-front signing bonus
  - Contractual quota for exploration period (CQEP)
  - Revenue-based royalty
  - Profit sharing payment based on the net operating profit or value of hydrocarbons
  - Over-royalty
  - Tax on exploration and extraction of hydrocarbons
MEXICAN GOVERNMENT TAKE HAS ALSO VARIED SIGNIFICANTLY

Average government take / additional royalty

Source: CNH
MEXICO – ROYALTIES

- **Oil Royalty**
  - Oil Price < $45.95 USD/bbl, the rate is fixed at 7.5%
  - Oil Price > $45.95 USD/bbl,
    \[
    \text{Roy} = [0.131 \times \text{Contractual Oil Price} + 1.5]\%
    \]

- **Gas Royalty**
  - Associated natural gas: Contractual price divided by 95.74.
  - Non-associated natural gas:
    - Gas Price ≤ $4.79 USD/MMBTU, the royalty is 0%
    - $4.79 < Gas Price ≤ $5.26 USD/MMBTU
      \[
      \text{Roy} = \frac{(\text{Contractual natural gas price} - 4.79) \times 60.5}{\text{Contractual natural gas price}}
      \]
    - Gas Price > US $5.26 USD/MMBTU: Contractual price divided by 95.74.

- **Condensate Royalty**
  - Condensate Price < $57.44 USD/bbl, the rate is fixed at 5.0%
  - Condensate Price > $57.44 USD/bbl
    \[
    \text{Roy} = [0.131 \times \text{Contractual Condensate Price} + 1.5]\%
    \]
MEXICO (AVERAGE ROYALTY)

CASH DISTRIBUTION (MM$)

- Royalty: 132 (43%)
- OPEX: 45 (15%)
- CAPEX: 56 (18%)
- TAXES: 43 (14%)
- COMPANY: 31 (10%)
MEXICO (LOW ROYALTY)

NET CASH FLOW (MM$)

- Revenue
- Expenses
- Net Cash (Before Tax)
- Net Cash (After Tax)
CASH DISTRIBUTION (MM$)

- Royalty: 78 MM$ (25%)
- OPEX: 45 MM$ (14%)
- CAPEX: 43 MM$ (14%)
- Taxes: 60 MM$ (19%)
- Company: 88 MM$ (28%)
MEXICO (HIGH ROYALTY)

NET CASH FLOW (MM$)

Revenue  Expenses  Net Cash (Before Tax)  Net Cash (After Tax)
MEXICO (HIGH ROYALTY)

CASH DISTRIBUTION (MM$)

- ROYALTY: 169 (58%)
- OPEX: 48 (17%)
- CAPEX: 43 (15%)
- TAXES: 17 (6%)
- COMPANY: 13 (4%)

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BRAZIL
BRAZIL – OIL AND GAS BASINS

Oil and gas activity
Inactive areas

OIL & GAS RESERVES
12,688 (million bbl) 13.6 years

OIL & GAS PRODUCTION
2,699 (thousand bbl/yr) 3.97%

ACTIVE & INACTIVE BASINS/ACTIVE CANADIAN E&P COMPANIES
98/4

OIL PRODUCTION
87%

GAS PRODUCTION
13%

Taken from Going Global Phase 3
1. Concession contracts
   - Assessment is done through the allocation of scores and weights, considering the signature bonus, the minimum exploratory program and the national content

2. Production sharing contracts (PSC)
   - The winner of the bid is the entity that offers the greater volume of oil to the Government
   - Production is divided between the State and the private companies
BRAZIL – FISCAL FRAMEWORK

- The fiscal regime that applies to the oil and gas industry in Brazil consists of:

- **Corporate income tax**
  - Federal: 15%
  - Surtax of 10% for profits > ~$60,000 USD
  - Social contribution tax of 9%

- **Government and third-party takes**
  - Signature bonus
  - Royalties: 5% to 15% (depending on the contract)
  - Special participation percentage: 10% to 40%
  - Fee for occupation or retention of an area
  - Landlord cost percentage: 0.5% to 1.0%
BRAZIL – FISCAL FRAMEWORK

- **Investment Incentive**
  - Regional tax incentives
    - REPENEC (Regime especial de incentivos para o desenvolvimento de infraestrutura da indústria petrolífera nas regiões Norte, Nordes e Centro-Oeste)
      - Suspension of social contribution taxes PIS and COFINS, federal value-added taxes (VAT) (IPI) and import duty (II)
    - SUDENE (Superintendência de Desenvolvimento o Nordeste)
    - SUDAM (Superintendência de Desenvolvimento da Amazônia)
  - Research and development
    - Tax incentives
  - Exportation incentives
    - RECAP (Regime Especial de Acquisição de Bens de Capital para Empresas Exportadoras)
      - Special tax regime for the acquisition of capital goods for companies qualified as exporting companies
EXERCISE APPLICATION – BRAZIL

NET CASH FLOW (MM$)

Revenue  Expenses  •••• Net Cash (Before Tax)  Net Cash (After Tax)
ARGENTINA
ARGENTINA – OIL AND GAS BASINS

OIL & GAS RESERVES: 2,701 (million boe)
RESERVE LIFE: 9.9 years
OIL & GAS PRODUCTION: 1,235 (thousand boe/d)
PRODUCTION FIVE-YEAR CAGR: -0.57%
ACTIVE E&P COMPANIES/ACTIVE CANADIAN E&P COMPANIES: 64/6

OIL PRODUCTION: 50%
GAS PRODUCTION: 50%

FIVE YEAR PRODUCTION (MILLION BOE/D)

Taken from Going Global Phase 3
ARGENTINA – FISCAL FRAMEWORK

• The fiscal regime that applies to the oil and gas industry in Brazil consists of:

• Corporate income tax
  – Federal: 35%
  – Minimum presumed income tax (MPIT): 1%
  – Withholding taxes (WHT): 15.05% or 35% for interest payments, 21% or 28% or 31.5% for royalties

• Royalties
  – Crown royalties: 12%

• Investment Incentive
  – Promotion program for incremental gas production sold on domestic market. $7.5 USD/MMbtu
  – Promotion system for investments in hydrocarbon operations
ARGENTINA

NET CASH FLOW (MM$)

Revenue
Expenses
Net Cash (Before Tax)
Net Cash (After Tax)
ARGENTINA

CASH DISTRIBUTION (MM$)

- Royalty: $102 million (32%)
- OPEX: $39 million (12%)
- CAPEX: $68 million (21%)
- Taxes: $43 million (13%)
- Company: $70 million (22%)

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BOLIVIA
BOLIVIA – OIL AND GAS BASINS

• Current production dominated by 4 naturally fractured, deep “Mega Campos”

• Historical production dates back many decades

• “Nationalization” of Morales regime proceeded reasonably smoothly.
BOLIVIA – FISCAL FRAMEWORK

- Service Contracts
  - YPFB issues service contracts that models as PSC’s.

- State royalty rate – 50%

- Bolivian liquids pricing is highly regulated

- Federal income Tax rate 12.5% (Foreign Oil & Gas Companies)

- GLJ – made reasonable assumptions for Profit share split.
• The fiscal regime that applies to the oil and gas industry in Peru consists of:

• **Corporate income tax**
  – Federal: 29.5%
    • +2% for oil & gas companies with license or service agreement
  – Dividend tax: 5%

• **Royalties**
  – Crown royalties: 5% to 35% (Depending on the methodology)
    • Production scales: 5% to 20%
    • Economic results (RRE): 5% to 25%
    • R-factor: 15% to 35%

• **Investment Incentive**
  – Capital allowances
PERU – CONTRACTS

1. License contracts
   – The investor pays a royalty to the Government

2. Service contracts
   – The Government pays remuneration to the contractor
PERU – ROYALTIES

• **Production Scales**
  – Based on certain scales of production for a specific period

<table>
<thead>
<tr>
<th>Scales of production (bpd)</th>
<th>Royalty</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 5</td>
<td>5%</td>
</tr>
<tr>
<td>5-100</td>
<td>5% - 20%</td>
</tr>
<tr>
<td>&gt;100</td>
<td>20%</td>
</tr>
</tbody>
</table>

• **Economic Results (RRE):**
  – Fixed royalty percentage of 5%
  – Plus variable royalty percentage (between 5% and 20%) once the ratio between revenues and expenditures as of the previous year is at least 1.15.
**PERU – ROYALTIES**

- **R-Factor**
  - Royalty is calculated by applying a ratio between revenues and expenditures of certain periods established in the contract.

<table>
<thead>
<tr>
<th>R-Factor</th>
<th>Royalty</th>
</tr>
</thead>
<tbody>
<tr>
<td>$R &lt; 1.0$</td>
<td>15%</td>
</tr>
<tr>
<td>$1.0 &lt; R &lt; 1.5$</td>
<td>20%</td>
</tr>
<tr>
<td>$1.5 &lt; R &lt; 2.0$</td>
<td>25%</td>
</tr>
<tr>
<td>$R &gt; 2.0$</td>
<td>35%</td>
</tr>
</tbody>
</table>

- **Cumulative Production per Oilfield with Price Adjustment**
  - The royalty is calculated based on a specific percentage per oilfield for a contract. Adjusted based on:
    - Cumulative production of each oilfield
    - Average price per barrel of such production
CASH DISTRIBUTION (MM$)

- ROYALTY: 83 (27%)
- OPEX: 60 (19%)
- CAPEX: 43 (14%)
- TAXES: 45 (14%)
- COMPANY: 82 (26%)

PERU
COLOMBIA
COLOMBIA – OIL AND GAS BASINS

OIL & GAS RESERVES 2,066 (million boe)
RESERVE LIFE 6.9 years
OIL & GAS PRODUCTION 1,160 (thousand bopd)
PRODUCTION FIVE YEAR CAGR -0.82%
ACTIVE E&P COMPANIES ACTIVE CANADIAN E&P COMPANIES 83/9
OIL PRODUCTION 85%
GAS PRODUCTION 15%
FIVE YEAR PRODUCTION (MILLION BOE/D)

Taken from Going Global Phase 3
COLOMBIA – FISCAL FRAMEWORK

- The fiscal regime that applies to the oil and gas industry in Colombia consists of:
  - **Corporate income tax**
    - Federal: 34% (2017), 33% (2018)
    - Surtax of 6% (2017), 4% (2018), 0% (2019) for taxable income > ~$265,000 USD
  - **Royalties**
    - Crown royalties: 8% to 25% (depending on rate)
    - High Price Royalty (HPR) payable on SS with Brent
      - First 5 MMBOE exempted.
    - Economic rights of the ANH
      - Right for use of the subsoil and subsurface during the exploration
      - Right for use of the subsoil and subsurface during the E&P
      - Rights for high prices
      - Rights of participation due to extension of production phase
      - Technology transfer rights
      - Other participation rights
      - Historically, often as low as 1%, but recently as high as 10% is seen.
• **Investment Incentive**
  - Exploration
    - Tax exemption for nonproductive assets
  - Unconventional
    - Tax deductions (50%) of the investment made for R&D
    - Value-added tax (VAT) exemption
    - Custom duty incentive
    - Accelerated depreciation not exceeding 20% rate
  - Capital Allowance
    - Depreciation
    - Amortization
    - Deduct all value-added tax (VAT) paid on acquisition or importation of capital goods taxed at the general rate
  - Donations: 25% tax credit
  - CERT (Tax refund certificate)
Government Royalty

- Between 8% and 25% for oil (sliding scale)
- For gas 80% (onshore and offshore below 1,000 ft depth) or 60% (offshore more than 1,000 ft depth) of the oil scale
COLOMBIA – ROYALTIES

High Price Royalty

– ANH payment = \( \frac{(P - Po)}{P} \times S \)

- **P**: Average benchmark of the West Texas Intermediate index (WTI) in US dollars per barrel.
- **Po**: Base price of benchmark crude oil expressed in US dollars per barrel. Depend on API gravity
- **S**: Participation rate between P and Po

### Table:
<table>
<thead>
<tr>
<th>Gravedad API de Hidrocarburos Líquidos producidos</th>
<th>Po (USD$/ BIL) (Año 2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mayor de 29° API</td>
<td>35,66</td>
</tr>
<tr>
<td>Mayor a 22° API e inferior o igual a 29° API</td>
<td>37,04</td>
</tr>
<tr>
<td>Mayor a 15° API e inferior o igual a 22° API</td>
<td>38,42</td>
</tr>
<tr>
<td>Descubrimientos localizados a más de 300 mts. de profundidad de agua</td>
<td>43,91</td>
</tr>
<tr>
<td>Mayor a 10° API e inferior o igual a 15° API</td>
<td>54,87</td>
</tr>
<tr>
<td>Hidrocarburos Líquidos asociados a Yacimientos No Convencionales</td>
<td>88,56</td>
</tr>
</tbody>
</table>

### Table:
<table>
<thead>
<tr>
<th>Precio WTI (P)</th>
<th>Porcentaje de participación (S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Po ≤ P &lt; 2Po</td>
<td>30%</td>
</tr>
<tr>
<td>2Po ≤ P &lt; 3Po</td>
<td>35%</td>
</tr>
<tr>
<td>3Po ≤ P &lt; 4Po</td>
<td>40%</td>
</tr>
<tr>
<td>4Po ≤ P &lt; 5Po</td>
<td>45%</td>
</tr>
<tr>
<td>5Po ≤ P</td>
<td>50%</td>
</tr>
</tbody>
</table>

### Table:
<table>
<thead>
<tr>
<th>Gas natural exportado: Distancia en línea recta entre punto de entrega y punto de recibo en país de destino</th>
<th>Po (USD$/MMBTU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menor o igual a 500 km</td>
<td>8,25</td>
</tr>
<tr>
<td>Mayor a 500 y menor o igual a 1000 km</td>
<td>9,61</td>
</tr>
<tr>
<td>Mayor a 1000 km o planta de LNG</td>
<td>10,98</td>
</tr>
</tbody>
</table>
COLOMBIA

CASH DISTRIBUTION (MM$)

- Royalty: 102 (32%)
- OPEX: 56 (18%)
- CAPEX: 65 (20%)
- Taxes: 43 (13%)
- Company: 53 (17%)

GLJ PETROLEUM CONSULTANTS
SUMMARY
NPV @ 10% AFTER TAX (MM$)

<table>
<thead>
<tr>
<th>Country</th>
<th>NPV (MM$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>$45</td>
</tr>
<tr>
<td>Brazil</td>
<td>$42</td>
</tr>
<tr>
<td>Argentina</td>
<td>$40</td>
</tr>
<tr>
<td>Colombia</td>
<td>$38</td>
</tr>
<tr>
<td>Canada</td>
<td>$36</td>
</tr>
<tr>
<td>Peru</td>
<td>$30</td>
</tr>
<tr>
<td>Mexico_Low</td>
<td>$28</td>
</tr>
<tr>
<td>Mexico_Avg</td>
<td>$20</td>
</tr>
<tr>
<td>Bolivia</td>
<td>$10</td>
</tr>
<tr>
<td>Mexico_High</td>
<td>$0</td>
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</tbody>
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NPV @ 10%