Financial Payment System for Deep Sea Mining of Polymetallic Nodules

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Open Ended Working Group on Financial Modeling
Kingston, Jamaica
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Agenda

• Review of financial payment system options
• Summary of Intersessional Work
• Approaches to “Fairness”
• Updates on Base Rates to Meet Fairness Goals
• Addressing Variation in Corporate Income Tax (CIT) Payments through Equalization Mechanisms
• Equalization Rates & Sensitivity to Cost Assumptions
• Summary & Next Steps
Only Activities in the AREA are regulated by ISA

However, activities outside the area impact the financial position of activities in the AREA

Summary of Intersessional Work

1. Advances on plan for tax on transfer of rights

2. Use of Effective Tax Rates as basis for “fairness” and a range of rates typically seen in land based mining

3. Equalization system for ensuring contractors that do not pay full 25% Sponsor State CIT or equivalent, still pay “fair” level of Effective Tax

4. Mechanisms for the periodic review of rates
# Review of Financial Payment System Options

## Four Options

1. Fixed ad valorem - one stage

2. Fixed ad valorem - two stage

3. Blended Profit – two stage
   (fixed ad valorem 1\textsuperscript{st} stage, blended profit & fixed ad valorem 2\textsuperscript{nd} stage)

4. Variable ad valorem - two stage
   (fixed 1\textsuperscript{st} stage, variable 2\textsuperscript{nd} stage)

## One Stage vs Two Stages:

- One stage: same rate in all years
- Two stage: rate changes in 2\textsuperscript{nd} stage

## Financial Systems:

- Fixed ad valorem rate (in each stage)
- Variable ad valorem rate (rate changes with metals prices)
- Blended ad valorem and profit

All systems can be designed to meet a desired goal (e.g., revenue to the ISA, Effective Tax Rate, or any goal)

Rates can be chosen to make any system meet stated goal under baseline conditions

However, each system will react differently to changes in Metals Prices, Costs and other assumptions
## Pros & Cons of the Different Systems

<table>
<thead>
<tr>
<th>Options</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fixed Ad Valorem</td>
<td>Simple to administer</td>
<td>Does not fully adjust to price &amp; cost changes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Misses opportunities for increased overall revenue available by staging</td>
</tr>
</tbody>
</table>
| 2. Two Stage Fixed Ad Valorem | Simple to administer  
Opportunity to increase overall revenue through staging | Does not fully adjust to price & cost changes |
| 3. Profit & Ad Valorem  | Automatically adjusts to changes in metals prices & costs  
Provides upside benefits if profits are high (but downside risks if profits low) | Complex to administer requiring a full accounting and monitoring/auditing system for profits |
| 4. Variable Ad Valorem   | Relatively simple to administer  
No accounting system needed                                            | Adjusts well to metal price changes, but not cost changes          |
How can we measure the effectiveness of the different systems and rates?

**Metrics:**
- Effective Tax Rate
- ISA Revenues
- Contractor IRR
- Others

**Behavior Under DifferentConditions**
- Baseline Assumptions
- Different Costs
- Changes to Future Metal Prices
Fairness as Basis for Selecting Rates

• Financial system neither advantages nor disadvantages DSM vs land based mining

• Contractors should be subject to the same overall tax burden as comparable land based mines (Effective Tax Rate)

• Two studies have looked at the range and average Effective Tax Rates
  • 39.2%, 46.0% (used average of these for baseline analysis, 42.6%)

• Other studies looked at the range of royalty rates
  • 2% to 12%, but depends on the royalty basis
  • Higher rate for ore (lower prices), lower rate for highly processed metals (higher prices)
Reminder of Other Important Model Assumptions

• Metals Price Forecasts
  • Updated for the March 2023 meeting

• Collector Costs
  • Updated for inflation to remain on same basis as metal price forecasts
  • Updated based on new information about technology/learning

• Sponsor State Corporate Income Taxes (CIT)
## Updated Metals Price Forecasts & Sensitivity Range

<table>
<thead>
<tr>
<th></th>
<th>Today’s Price*</th>
<th>20% Lower Forecast</th>
<th>Baseline Forecast</th>
<th>20% Higher Forecast</th>
<th>Typical Range**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mn Ore</td>
<td>$4.97/dmtu</td>
<td>$3.80/dmtu</td>
<td>$4.75/dmtu</td>
<td>$5.70/dmtu</td>
<td>$3.8-6.1/dmtu</td>
</tr>
<tr>
<td>Nickel</td>
<td>$24,815/t</td>
<td>$16,000/t</td>
<td>$20,000/t</td>
<td>$24,000/t</td>
<td>$16,000-28,000/t</td>
</tr>
<tr>
<td>Cobalt</td>
<td>$48,874/t</td>
<td>$48,000/t</td>
<td>$60,000/t</td>
<td>$72,000/t</td>
<td>$40,000-80,000/t</td>
</tr>
<tr>
<td>Copper</td>
<td>$9,174/t</td>
<td>$7,200/t</td>
<td>$9,000/t</td>
<td>$10,800/t</td>
<td>$6,000-10,000/t</td>
</tr>
</tbody>
</table>

*March 1, 2023 price

**Semi-quantitative assessment of both recent historical and medium-term forecasts.
# Updated Baseline Results Using 42.6% ETR

**Royalty Basis: Gross Metal Value**

<table>
<thead>
<tr>
<th>Option</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; Stage Rate</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt; Stage Rate</th>
<th>Effective Tax Rate</th>
<th>ISA Revenue</th>
<th>Contractor IRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Two Stage Fixed Ad Valorem</td>
<td>2.5%</td>
<td>7.0%</td>
<td>42.5%</td>
<td>$3.7 billion</td>
<td>15.9%</td>
</tr>
<tr>
<td>3. Profit plus Ad Valorem</td>
<td>2.5%</td>
<td>15%</td>
<td>42.6%</td>
<td>$3.7 billion</td>
<td>15.9%</td>
</tr>
<tr>
<td>4. Two Stage Variable Ad Valorem</td>
<td>2.5%</td>
<td>4.5% @ GMV = $510/t - 9.5%  @ GMV = $720/t</td>
<td>42.5%</td>
<td>$3.7 billion</td>
<td>15.9%</td>
</tr>
</tbody>
</table>

Under baseline metal price forecasts, GMV = $614/t, Option 4 gives same result as Option 2
Assumes contractors pay 25% Corporate Income Tax to their Sponsor State
Gross Metal Value defines as value of contained Copper, Nickel & Cobalt metal plus the reminding Mn-oxide ore
Gross Metal Value as the Royalty Basis

• GMV = sum of the value of Copper, Nickel & Cobalt metals, plus the value of Mn-oxide ore

• Why this approach?
  • Global price indices provide clear arms-length values for these items

• Why Mn-oxide ore and not EMM, Ferromanganese or other forms?
  • Best practice recommends use of the first processed form of a material for which an arms-length price exists
  • Using Mn-oxide ore price satisfies this practice and avoids discussion of further processing plans

• Why not Nodule Transfer Price?
  • No existing market yet \(\rightarrow\) difficult to know arms-length transaction price
  • Could be a great solution in the future once a fully function market forms
Beijing Pioneer Hi-Tech Company recommends using raw ore valuation (Nodule Transfer Price)

- BPC believes the best and legal way for the ISA to receive revenue is through a royalty
  - They believe the fourth payment regime is most reasonable (fixed 1\textsuperscript{st} stage, variable 2\textsuperscript{nd} stage)

- The royalty should be calculated as the following:

- The ore in previous formulas are valued according to the metal or mineral in the ore instead of the raw ore

- Recognize that value of raw ore can be related to value of contained metal through a multiplier
Reconcile the Nodule Transfer Price & Gross Metal Value Approaches by Choosing the Correct Rates

• Royalty = Rate * Value
  (either gross metal value or nodule transfer price)

• Nodule Transfer Price = factor * Gross Metal Value
  • Factor incorporates costs of transforming the nodules into the form sold
    (three metals plus Mn ore)

• Therefore, we can easily transform the rate needed when using Nodule Transfer Price into an equivalent rate needed when using Gross Metal Value
  • Rate needs to be higher if using Nodule Transfer Price since it will be multiplied by a lower value
Can We Address GMV vs NTP Issue?

• Financial model uses Gross Metal Value
  • Because there are currently price indices for the 3 metals plus Mn ore
  • No price index for nodules
• Model also computes an effective Nodule Transfer Price
  • Using the information about metals processing costs and conditions
  • Factor relating Gross Metal Value and Nodule Transfer Price can be estimated
• Baseline Conditions
  • Gross Metal Value = $614/t
  • Nodule Transfer Price = $365/t
  • Factor (NTP/GMV) = 0.59
• If Nodule Transfer Price basis is preferred, it can be estimated by multiplying GMV by 0.59
• However, with this smaller value basis, royalty rates should be multiplied by (1/0.59)=1.7
• This would yield identical results and meet all targets
What happens if contractors don’t pay full 25% CIT or equivalent to their Sponsor State?

<table>
<thead>
<tr>
<th>Option</th>
<th>1(^{st}) Stage Rate</th>
<th>2(^{nd}) Stage Rate</th>
<th>ETR no CIT</th>
<th>ETR full 25% CIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Two Stage Fixed Ad Valorem</td>
<td>2.5%</td>
<td>7.0%</td>
<td>24.9%</td>
<td>42.5%</td>
</tr>
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Financial system is no longer fair for contractors not paying full 25% CIT
Can We Define an Equalization System to Remedy this Issue?

- Equalization System Requirements
  - Brings all contractors, regardless of Sponsor State CIT payments up to fair level of ETR
  
  - Doesn’t penalize contractors already paying the full 25% Sponsor State CIT assumed when rates were analyzed

- Simple to administer

- Satisfies all requirements under a variety of conditions
  - Different future metals prices
  - Different future contract costs
Three Proposed Approaches to CIT Equalization

1. Additional Fixed Rate Royalty
   Ad valorem rate applied in same manner as base royalty
   CIT and related payments to sponsor state deducted

2. Additional Profit Share
   Tax rate applied to positive cash flows (additional details)
   CIT and related payments to sponsor state deducted

3. Top-up Profit Share
   Use newly developed GloBe3 to determine contractor CIT payment rate
   Additional payment assessed if rate is below 25%
Equalization System #1:
Additional Fixed Rate Royalty

Contractors will pay an **additional royalty** to the ISA against which CIT is creditable

**Key Details:**
- Additional and separate from existing royalty
- Rate set from the 5th year of production
- Contractors that did pay 25% CIT should have no additional tax burden
- Only actual and verified sponsored state cash payments are creditable against the royalty
- Cost uplift can be used when setting rate to eliminate risks of overpayment if costs increase

**Pro:**
- Simple to implement compared to other approaches
  - Uses existing Ad Valorem framework
    - No additional accounting system needed

**Con:**
- Imperfect equalization
- In some years, contractors already paying full 25% CIT may not have enough to fully offset additional payment
- If costs are higher than anticipated in model, contractors may always end up paying additional royalty even when paying full 25% CIT
Equalization System #2: Additional Profit Share

Contractors will pay additional profit share to the ISA to which CIT is creditable

Key Details:
- Additional and separate from existing royalty
- Based on both positive profits and cumulative profits
  - Only kicks in after cumulative profits are positive
- “Profits” calculated on a cash flow basis
  - Simplifies need to consider capital depreciation
- Rate can be chosen so that contractors paying no Sponsor State CIT will meet overall Effective Tax Rate target
- Contractors that did pay 25% CIT should have no additional tax burden

Pro:
- Automatically adjusts additional payment if contractor cost and therefore profits vary
- Simpler profit calculation by eliminating need for depreciation calculations
- Provides better equalization than pure Ad Valorem system

Con:
- More complex to develop & administer
- All cash flows must be monitored and audited to determine payment
- Imperfect equalization
Equalization System #3: Top Up Profit Share

Contractors make additional payment to bring Global CIT to 25%

Key Details:

• The additional payment is directly calculated as the amount needed to bring all contractors to a combined payment (CIT plus additional payment to ISA) equal to 25% CIT

• This mechanism will be based on the OECD Model GloBE Rules with adjustments for ISA-specific requirements (25% requirement)
  • The goal of the GloBE model is to prevent tax avoidance and tax base erosion by multi-national companies
  • Simple ETR calculations that can be compared across jurisdictions
  • Adopted by over 140 countries

• Independent auditors exists, compliance can be outsourced

• Rules updated by OECD as needed to close loopholes

Pro:
• Avoids distortions; Perfect equalization
• Auditing can be outsourced to independent accounting firms using OECD GloBe system

Con:
• Complex mechanism
• Need to collect all needed accounting data
Pros & Cons of Systems: Tradeoff between Complexity & Full Equalization

- Complexity
- Degree of Equalization

- Additional Fixed Rate Royalty
- Additional Profit Share
- Top-Up Profit Share
## Complexity and Equalization Issues

<table>
<thead>
<tr>
<th></th>
<th>Costs</th>
<th>Revenues</th>
<th>Accounting System</th>
<th>Deductions</th>
<th>Equalization issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Fixed Rate Royalty</td>
<td>Not needed</td>
<td>Based on metals prices, already required for base royalty payment</td>
<td>Not needed</td>
<td>CIT Payment Other expenses?</td>
<td>No single rate can bring those not paying CIT up to the base ETR without also incurring an additional cost</td>
</tr>
<tr>
<td>Additional Profit Share</td>
<td>All costs need to be tracked</td>
<td>All revenues need to be tracked</td>
<td>Simplified accounting system without depreciation needed</td>
<td>CIT Payment Other expenses?</td>
<td>Because cash flow and profits are not the same calculations, the equalization is close but imperfect</td>
</tr>
<tr>
<td>Top-Up Profit Share</td>
<td>All costs need to be tracked</td>
<td>All revenues need to be tracked</td>
<td>Use GloBe 2 accounting system being developed by OECD</td>
<td>No deduction needed</td>
<td>Perfect Equalization</td>
</tr>
<tr>
<td>Equalization System</td>
<td>Rate</td>
<td>CIT = 0%</td>
<td>Effective Tax Rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>---------------</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Additional Fixed Rate Royalty</td>
<td>7%</td>
<td>42.6%</td>
<td>24.8%</td>
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<td></td>
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<td>42.7%</td>
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<td></td>
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<tr>
<td>Top-Up Profit Share</td>
<td>Up to 25%</td>
<td>42.6%</td>
<td>24.8%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
What happens if costs are 20% higher than anticipated? Option #4: Variable Rate Ad Valorem 2.5% → 4.5/9.5%

<table>
<thead>
<tr>
<th>Equalization System</th>
<th>Effective Tax Rate</th>
<th>Additional Payments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rate</td>
<td>CIT = 0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>With add’l payment</td>
</tr>
<tr>
<td>Additional Fixed Rate</td>
<td>7%</td>
<td>48.9%</td>
</tr>
<tr>
<td>Royalty</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional Profit Share</td>
<td>19.25%</td>
<td>46.7%</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top-Up Profit Share</td>
<td>Up to 25%</td>
<td>45.8%</td>
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Note: As expected, effective Tax Rates have gone up because at higher costs, profits have decreased. However, some systems inadequately address the impact of rising costs resulting in high unwarranted add’l payments.
One solution is to apply a cost up-lift when determining equalization system rates. +10% Cost Up-Lift

<table>
<thead>
<tr>
<th>Equalization System</th>
<th>Sponsor State Tax CIT = 25%</th>
<th>Rate Needed to Make Up CIT with uplift</th>
<th>Rate Needed to Make Up CIT without uplift</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Fixed Rate Royalty</td>
<td>$3,282 million</td>
<td>4%</td>
<td>7%</td>
</tr>
<tr>
<td>Additional Profit Share</td>
<td>$3,282 million</td>
<td>12.5%</td>
<td>19.25%</td>
</tr>
<tr>
<td>Top-Up Profit Share</td>
<td>$3,282 million</td>
<td>Up to 25%</td>
<td>Up to 25%</td>
</tr>
</tbody>
</table>

Rates needed in equalization system are lower when cost assumptions are higher However, these rates will be less effective at fully equalizing the system if costs aren’t in fact higher.
Lower rates ➔ Add’l payment nearly 0 if CIT = 25%
However, systems no longer equalize if CIT = 0%

<table>
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<th>Additional Payments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rate</td>
<td>CIT = 0%</td>
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<td>Additional Fixed Rate Royalty</td>
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<td>35.3%</td>
</tr>
<tr>
<td>Additional Profit Share</td>
<td>12.5%</td>
<td>36.3%</td>
</tr>
<tr>
<td>Top-Up Profit Share</td>
<td>Up to 25%</td>
<td>42.5%</td>
</tr>
</tbody>
</table>

First two systems do not equalize and do not satisfy fairness criteria, ETR = 42.6% for contractors paying no CIT
Summary: Decisions to be made

1. Select a financial payment system for base royalty
   Options 1, 2, 3, 4
   Leaning towards Option 4/Two stage variable ad valorem system

2. Choose valuation basis:
   Gross Metal Value: 3 metals plus Mn-ore
   consideration given to using Nodule Transfer Price in future

3. Set Effective Tax Rate target that represents “fair” system
   42.6% proposed as average of values from two studies (39.2% & 46.0%)

4. Select a system for CIT Tax Equalization
   Additional Fixed Rate Royalty
   Additional Profit Share
   Top-Up Profit Share
What needs to happen after these decisions are made?

- Determine the rates to be used for the base financial system and the equalization system

- Draft full legal text around chosen approach including the details around monitoring and accounting for the systems