Reference: MOM/PMU/74/QBS

IDA Grant No: H238-AF

SUSTAINABLE DEVELOPMENT OF NATURAL RESOURCES PROGRAMME

AYNAK COMPLIANCE MONITORING PROJECT

ANALYSIS OF ORIGINAL BIDS FOR AYNAK CONTRACT 2007

DISTRIBUTION		
Affiliation	**Name**	**Comments**
MOMP	HE the Minister of Mines & Petroleum, Mr. W. Shahrani	Electronic & printed
	Head of Aynak Copper Project Authority, Eng. Aziz Arib	Dari version - to follow
	Director of Legal Services - S. Hashemi	Electronic & printed
	Head of Dept of Cadastre - Eng. N. Noor	Electronic & printed
PMU	Operations Director - M. Haroon Naim	Electronic & printed
PMU	Executive Director - W. Qaderi	Electronic
GAF	GAF-Team in Afghanistan and GAF- Project File 7586	Electronic

AUTHOR			
	Affiliation	**Name**	**Date**
Prepared by:	Team Leader, GAF	Vaughan Smith	08/08/13

DOCUMENT HISTORY	
	DATE
Version 1	29 June 2013
Version 2	12 August, 2013

Table of Contents:

Tables

Table 1: Acronyms, Abbreviations &Terms Use

TERM	MEANING
ACP	Aynak Copper Project
AMC	Aynak Mining Contract
BFS	Bankable feasibility study
Cu	Copper
DCF	Discounted cash flow - internationally recognised financial modelling & project evaluation technique
EPCM	Engineer, procure, commission & manage - internationally recognised contract execution system meaning "design, construct & operate"
ESIA	Environmental & Social Impact Assessment
EoI	Expression of Interest
FS	Feasibility Study
GoIRA	Government of the Islamic Republic of Afghanistan
HEMOMP	His Excellency, the Minister of Mines & Petroleum
IRR	Internal Rate of Return - measure of economic value of a project, based on DCF
kV	Thousand volts (electricity)
LOM	Life of Mine - total years of production at a mine
MC	Mining Contract
MCC	Metallurgical Corporation of China Ltd
ML	Mining License
MOMP	Ministry of Mines & Petroleum
MW	Megawatt (power)
RFP	Request for Proposals
WB	World Bank
TECHNICAL TERMS & ABBREVIATIONS	
kt	Thousand tonnes
kt/A	Thousand tonnes per annum
Mt	Million tonnes
Mt/A	Million tonnes per annum
$bn	Billion US dollars
$M	Million US dollars
$M/A	Million US dollars per annum
$/lb	Dollars per pound of copper (1 tonne = 2,204.62 pounds)
R, P	IN ROYALTIES FORMULAS: R = ROYALTY RATE (%) P = COPPER PRICE ON THE LONDON METAL EXCHANGE, IN $/lb
Cathode	Pure copper (>99.9% Cu) produced in a refinery by an electrolytic process called "electrowinning"
Concentrate	A product containing about 40% Cu produced at the mine by the processes of crushing, milling & flotation. Concentrate requires further processing by smelting or SX-EW to produce cathode Cu, either at the mine or after export.
SX-EW	Solvent Extraction & Electrowinning - a modern technology for producing pure cathode copper without smelting
ABBREVIATED NAMES OF BIDDING COMPANIES	
HDI	HUNTER DICKINSON - CANADA
KAZ	KAZAKHMYS - KANIMANSUR IFK CONSORTIUM (KAZAKHSTAN)
MCC	METALLURGICAL CORPORATION OF CHINA LTD - CHINA
PD	FREEPORT MCMORAN COPPER & GOLD INC - USA (PHELPS - DODGE)
SF	STRIKEFORCE LTD - UNITED KINGDOM

1 INTRODUCTION

The Aynak Copper Deposit, at the time of inviting bids, was a well-explored resource, defined by extensive geological data and preliminary feasibility study work prepared by the Russian authorities during their occupation of Afghanistan. The deposit was known to be truly "world class," being regarded as the second-largest known, unmined deposit in the world and of exceptionally high grade. The resource was measured at 240Mt @ 2.3% Cu. These properties allowed the Government to invite competitive bids with the expectation of offers of exceptional benefit to Afghanistan.

The Government invited bids for a mining license, following a structured process that was designed to be transparent, standards-based and competitive, following accepted international best practice, under the monitoring and advice of international experts. The objective was to ensure that the selected bidder offered the best deal in terms of sustainable benefits to the Islamic Republic of Afghanistan.

2 TERMS FOR BIDS PRESCRIBED BY GOVERNMENT

Guidelines were provided to all bidders who had been pre-qualified based on their Expressions of Interest submitted in 2007 and on an assessment of each bidder's track record and financial and technical capability to carry out the project.

The guidelines provided for the selection of a preferred and reserved bidder imposed criteria listed in Appendix 1 of this memorandum.

The key requirements of bids, as laid down in the guidelines, are summarised in Appendix 2 of this memorandum.

The guidelines specified that the mining plan must provide for commencement of operations within 84 months of grant of the ML.

The guidelines were accompanied by a draft Mining Contract. The format of the contract is substantially the same as the AMC as finally signed with MCC. Some key provisions of the model MC are listed in Appendix 3 of this memorandum.

3 DOCUMENTS PROVIDED FOR REVIEW

In order to conduct this review and to produce this report, the GAF Team Leader was supplied on 11 June 2013, on signature of a Confidentiality Agreement, with the following documents.

Table 2: Documents Reviewed

SOURCE	DOCUMENT	
MOMP	BIDDING PROCEDURES & GUIDELINES	14pp
	AYNAK MODEL CONTRACT FINAL VERSION 4	36pp
MCC	FINANCIAL BID	9pp
	TECHNICAL PLAN	113pp
	EXECUTIVE SUMMARY - TECHNICAL	11pp
	ENVIRONMENTAL & SOCIAL ISSUES (PART V)	44pp
PHELPS DODGE	FINANCIAL BID	19pp
	FINANCIAL BID: EXECUTIVE SUMMARY	14pp
	TECHNICAL BID	22pp
	TECHNICAL BID: EXECUTIVE SUMMARY	11pp
HUNTER DICKINSON	FINANCIAL PROPOSAL	84pp
	FINANCIAL BID: EXECUTIVE SUMMARY	10pp
	TECHNICAL PROPOSAL	148pp
	TECHNICAL BID: EXECUTIVE SUMMARY	16pp
IFK CONSORTIUM	FINANCIAL PROPOSAL PART I	10pp
	FINANCIAL PROPOSAL PART 2 (EXCEL WORKBOOK)	8pp
	TECHNICAL PART BID PROPOSAL	42pp
STRIKEFORCE UK	ORIGINAL FINANCIAL BID	52pp
	ORIGINAL TECHNICAL BID	86pp

No technical documentation, as supplied to the bidding companies, has been supplied to GAF by MOMP. To some extent this has inhibited the review process.

4 BIDS

Bids were considered from FIVE pre-qualified companies. Appendix 4 contains five tables summarising & comparing key components of the bids.

Table 3 contains a general summary of the key points of the respective bids.

Table 4 contains a more detailed, general summary of the contents of the respective bids.

Table 5 summarises proposed structures for premium payments.

Tables 6 & 7 compare royalty proposals.

The following discussion and comparison of the bids focuses primarily on direct technical and financial highlights of the respective bids. Except where specific comments are offered, this analysis ignores social, environmental and health and safety aspects of the bids. In general terms, except where specific omissions are noted, the bids all make similar commitments to adhere to internationally accepted standards and Afghanistan legislation, and to the principle of creating benefit for the nation, Logar Province and the Afghan people.

Similar comments apply to the due diligence and other pre-exploitation programmes.

4.1 MCC – China (MCC)

In addition to an investment of $2.833bn in the Aynak Mine, MCC proposed to invest a further $460M in other infrastructure including the power plant, phosphate mine & smelter. It also undertook to "carry out the survey for the railway from Tajikistan through Afghanistan."

The company offered by far the highest premium, at an unconditional $808M payable in tranches against achievement of project milestones. However, reality has been rather different from the proposal, as indicated in Appendix 4 Table 5. The table shows "MCC as per Contract," i.e. the premium payments schedule if all milestone dates had been achieved, compared with actual payments to date.

As the end of the fifth year of the contract approaches, MCC has made three premium payments totalling $183.8M. If they had achieved the planned project milestones to date, the payments due would have totalled $242.4M & the final payment of $ 565.6M would have been come payable later this year, to achieve the total promised premium of $808.0M.

Although the proposal contains a tabulation of proposed royalty rates, it also SUGGESTS a formula which is in fact the formula ultimately incorporated in the Contract; i.e.

R (%) = (10P – 7.5)x120% where R = royalty rate (%) & P is the copper price in US$/lb Cu

with a fixed rate of 15% x 130% at prices exceeding $2.00/lb. This equates to 19.5% at prices exceeding $2.00/lb.

Financial modelling was based on a copper price of $1.25/lb & a corresponding royalty rate of 6%. The project model comprised a 25-year life including 5 years of construction. The IRR before & after tax was calculated as 13.19% &11.14%, respectively.

The proposal contains a risk statement which does not recognise security or availability of phosphate.

4.2 FREEPORT McMORAN COPPER & GOLD INC - USA (PHELPS - DODGE) (PD)

The company proposed to produce concentrate for export but to conduct research with a view to further processing of concentrate by a proprietary process. This technology, owned by the company, involves a pressure leach phase ahead of SX-EW and production of cathode copper without smelting. PD has successfully implemented this technology at its Morenci Mine in Arizona. Oxidation of sulphur produces heat which is used in the process; however, the high bornite content of Aynak ores may be an inhibiting factor.

The company operates mines in South America with less than 1% expatriate staff.

The capital estimate of $0.61bn for the mine & concentrator with no smelter (USD 2007) is compatible with the recent comments by Chilean advisors that a mine of similar size in Chile would cost $1.0 -1.5bn in today's dollars. The estimate is backed up with comparative capital costs of recent developments by Phelps Dodge.

The pre-feasibility study was planned for completion within 2 - 3 years, generating 30% measured & 70% indicated resources & a capital estimate with 30% confidence. A full, bankable feasibility study was planned within the next 2 - 3 years, incorporating a full mining

design & generating proven & probable reserves, with capital estimates with 15% confidence. (These are international norms).

Construction was estimated as a third phase of 2 - 3 years. In Phase 4, production, the company proposed to investigate the feasibility of expansion of production and of the use of concentrate leaching.

The company's proposals for phased premium payments was structured similarly to the MCC schedule: $5M on signature of contract; $7.5M/A until production; $10M on "commitment" of the BFS; $20M on decision to proceed. Assuming 6 years until production, this would have yielded $80M prior to commercial production. Further payments were then designed to share project technical risk by linking them to the copper content in PROVED & PROBABLE RESERVES as defined by the BFS. The final payment calculated on the copper contained in the resource would be net of prior payments, i.e. the early payments would have been deducted from the final calculated figure.

Assuming that the resource figure of 240Mt @2.3% Cu translated to reserves, this would have yielded a final & total premium of $243.4M; i.e. earlier payments would have been deducted. Assuming a 6 year pre-production period, the final tranche would have been $163.4M.

If the final resource of 454.4Mt @ 1.75% Cu as reported by MCC was similarly translated to reserves, the total premium would have amounted to some $350M with the final tranche being $270M.

The company offered a royalty rate based on the formula:

R(%) = (10 P– 7.5) (R = royalty% & P = copper price in US$/lb)

At $1.00/lb the royalty rate would be 2.5% but at $3.00/lb it would be 22.5%. Nominally this appears very favourable. HOWEVER, fixing the maximum payable in any one year at US$100M effectively means that, assuming the company produces 200,000t/a of copper, the maximum royalty rate that would ever apply would be 11.8% at a price of $1.93/lb. Above that price the rate would steadily decline as a percentage of company revenue and at $3.00/lb it would be only 7.6%.

In Appendix 4, Table 5, the effective royalty rate offered by Phelps Dodge is shown in addition to the nominal rate. The effective rate applies at a production level of 200,000 tonnes per annum at each price.

4.3 HUNTER DICKINSON (CANADA) (HDI)

The proposal focuses on Central Aynak, supporting a 22-year life of mine, with a commitment to investigate the West Zone in detail and to thoroughly explore the entire exploration license area.

The proposal does not include a smelter. It recognises an initial milling rate of 35kt/day to produce concentrate, later increasing to 70kt/day from Year 14. It includes a proposal to construct a hydrometallurgical plant (no smelter) to produce 50kt/A cathode copper from Year 9. The company reports having access to proprietary pressure leaching/SX-EW technology through a partner. It proposed construction by an EPCM contractor.

Cathode and concentrate produced was to be shipped 150km by road to Pakistan, then by rail 2,000km to Karachi, then by ship to customers.

It was proposed to build a 100MW power facility on site, powered by diesel generators, to be replaced later by a 100MW coal-fired power station using local coal if available, otherwise imported. The diesel units would revert to a standby role. 100MW was considered adequate for the mine at a milling rate of 70kt/day plus the refinery. In the first phase, before final production levels were attained, it was proposed to sell spare capacity of 20 - 30 MW to the national power grid. In order to continue selling surplus power, it was proposed to build the coal facility to a higher capacity than required by the mine - actual capacity not specified. It was proposed to outsource this function to a third party. The cost of the coal mine with capacity of 1Mt/A was estimated at $5M.

The company proposed to enhance the existing road network as required. Water supply was not specified in any detail beyond an intention to construct wells in the Logar basin.

Capital expenditure of $1.4bn excludes the coal mine but includes $100M for the premium and $200M for the refinery (SW-EW plant).

The proposal contains a modest offer of $100M in premiums in four tranches linked to progress milestones, structured similarly to other bidders.

Royalties were proposed to start at 1% at a copper price of $1.00/lb, increasing progressively to a maximum of 15% at prices equalling or exceeding $3.50/lb. There was NO cap on total dollar payments, i.e. the company and the Government would share any high price windfalls.

A formula was proposed:

R (%) = ((P - 1.00)*(0.13/2.5) + 0.02) (R = royalty% & P = copper price in US$/lb)

This formula does not make any mathematical sense and the logic of the numeric factors is unclear.

The company makes a specific commitment to skills training ahead of production. It comments that minimal pre-stripping is required but that this phase will be used to train operators ready for production.

The company proposed to create the wholly-owned Aynak Copper Mining Company & to consider floating it publicly at a later stage.

There was a relatively slow build-up in local staffing. The company proposes to create some 770 direct jobs & refers to 400 -500 contractors. The proposal shows a slow build up of local staffing to 53% after 3 years of production increasing gradually to 97% after 9 years of production. It refers to 4,000 - 5,000 "new jobs" presumably in support industries and suggests that total positions created may be 5,000 to 7,000 "with more than 95% being Afghan citizens within less than a decade of the start of the mine" - assumed to refer to actual commercial production. The proposal extrapolates figures for the effect on the economy of Logar Province. The numbers are unclear & are based on South American comparisons & rather vague assumptions.

The proposal contains a risk assessment which recognises regional security as a high risk factor and makes the assumption that the Government of Afghanistan will "maintain and improve the security situation in Afghanistan as a whole." It makes the interesting comment that the company expects that its development and social programmes will secure the goodwill of the local population, to the benefit of security. The proposal includes a statement of intent to commission a professional security risk assessment.

The proposal on environmental & social programmes makes specific mention of protection of cultural relics, in general terms.

The proposal contains no DCF model but demonstrates a substantial LOM profit and positive cash flow at a price of $1.25/lb.

The proposal includes substantial evidence of funding support and a completed draft Mining Contract containing the specific terms offered by Hunter Dickinson.

4.4 KAZAKHMYS - KANIMANSUR IFK CONSORTIUM (KAZAKHSTAN) (KAZ)

The technical proposal was to start production in Year 2 (2009), mining and smelting 2Mt of ore, building up to maximum production in Year 9 (2016), mining & smelting 20Mt/A. Total Life of Mine was stated as 30 years, during which a total of 487Mt of ore was to be mined and smelted. The mining programme comprised an undefined mix of open pit and underground mining.

The proposal contains a very lengthy and detailed description of historic exploration work and a statement of proposed further exploration work but does not justify the resource of 487Mt which it proposes to extract. It talks of producing saleable concentrates at 70- 92% Cu. It goes on to discuss open pit exploitation of both the Central and West Zones, supplemented by U/G mining. Other figures show processing of all ore by concentration, including oxides, with the grade of concentrate from sulphide ore ranging from 40-42% Cu.

The proposal contains vague and superficial references to sourcing power from a system of power stations near Kabul, via 110kV lines & with a capacity of 180MW, supplemented later by construction of a coal-fired power station or imports from Tajikistan.

The proposal stated that "up to" 3,000 jobs would be created. Sourcing of local goods would be "up to" 20% and local "works and services" would be "up to" 80%.

Annual copper output varies, the Life of Mine total being 7.514Mt, which equates to an overall grade of 1.78% Cu at a total processing recovery of 87%. Peak production is some 325kt/A with the average during 20 stable production years (excluding low output in the first 6 years & final 4 years being 310kt/A.

There is no discussion of premium payments but an up-front, one-off payment of $2.0M "signature bonus" is mentioned.

Similarly, royalties are not discussed but a figure of 18.1% appears in the financial tables.

Financial modelling carried out at a price of $3.31/lb Cu gives an IRR of 38.5% and a payback of 7 years. Discount factors of 10 - 25% were used. The investment is $2.1bn.

References to social, environmental, health and safety aspects and proposed practices are superficial.

4.5 STRIKEFORCE LTD (UNITED KINGDOM)

For the purposes of the bid, Strikeforce Ltd, a member of the Base Elements Group, formed "The Aynak Consortium" with Technologists Inc., a US &Afghan construction & engineering company. The technical proposal states that the bid is submitted as part of a comprehensive, integrated infrastructural development plan.

The bid includes a letter of support from the International Finance Corporation IFC to consider project financing up to 25%. It is also the only bid in which an independent projection of future Cu prices was seen. The long term projection by 51 independent analysts was $1.25/lb.

The technical proposal includes 5 years of heap leaching of oxide ore to produce some 100kt/A. Production from the Central Zone open pit will sustain output of 180kt/A Cu in cons at 41% to a point where the depth of the pit increases and U/G ore from the West Zone will make up the resulting deficit. The oxide ores will be treated by SX-EW to produce cathode Cu although the company does not claim to have direct access to the necessary proprietary technology.

The Technical Plan is extremely detailed & thorough. It notes that smelting is not viable but options will be explored. There is a detailed analysis of power requirements & supply, concluding that the optimum source is the proposed North East Power System (NEPS) scheme. There is a statement that the mining company will not generate power but draw on other sources generated by third parties, relying on the suggestion that the Aynak Project will make proposed schemes more viable. A similar comment is made in respects of the rail network. There is an equally thorough summary analysis of water supply options, with the selected option being to draw supplies entirely from the Logar well field.

The proposal reviewed various options for transporting inputs and copper produced, including, interestingly, airlifting of Cu cathode to Mazar-i-Sharif. It included a proposal to bus employees to & from Kabul, presumably minimising the need for construction of mine housing, but also commented on the company's intention to build housing and associated facilities. The study included a security risk assessment and reasonably detailed security plan, with capital and operating costs provided in the budget.

Interestingly, the proposal contained a comment that the tailings dam site proposed by the Russian studies (MCC Site 1) was unsuitable due to its proximity to the Logar River.

The plan tends to rely excessively on the concept that "further studies are required."

The company offered a royalty rate based on the formula:

R(%) = 5P - 5 where R is the royalty rate (%) & P is the price of copper (US$/lb), with a minimum of 2.5% at $1.50/lb & below and a maximum of 7.5% at $2.50/lb & above.

The proposal contains a useful tabulation of royalty rates applied in a number of countries, both First World & Third World.

The proposal includes a premium of $320M phased against achievement of project milestones.

5 COMMENTS & RECOMMENDATIONS

5.1 MCC BID

Nominally, the bid presented by MCC clearly offered maximum benefit to the Government and nation of the Islamic Republic of Afghanistan.

In practice, five years after the contract was signed, the company has built minimal infrastructure, conducted some exploration of the main deposits and claims to have made substantial progress with the feasibility study. It refuses to divulge any of the incomplete FS, to discuss the ESIA, establish a technical office in Afghanistan or to disclose financial fundamentals for the project.

At the time of writing, MCC has suspended work on the Aynak Copper Project and has requested significant amendments of the Aynak Mining Contract as a pre-condition for resuming work and, specifically, for submitting the bankable feasibility study.

The points which MCC wishes to re-negotiate include, amongst others, construction of the smelter, power station and coal mine; premium payments; royalties & taxes, plus a mechanism to stop work at their discretion and claim compensation from the Government.

It is difficult to escape the conclusion that, at the time of bidding, MCC adopted the tactic of making an unrealistic offer that was conspicuously the best, in order to secure the resource, with no intention of ever delivering on its promises.

5.2 PHELPS DODGE BID

The proposal submitted by Phelps Dodge is completely professional and realistic, as expected from a company of its international standing. The premium offered, $243.4M, is linked to the copper content of the resource, a reasonable principle, and a higher figure could have resulted from successful exploration. It is possible that this number could be negotiable.

Phelps dodge is the only company that put a limit on the actual annual royalty payments. Its proposals on royalties are nominally very favourable, in percentage terms, but the "cap" on actual dollar payments effectively reduces these percentages significantly.

In any future discussions that may transpire with Phelps Dodge, it is recommended that lower percentage royalties should be accepted but there should be no maximum payout in actual dollars; i.e. both parties would share the benefits of high prices.

5.3 HUNTER DICKINSON BID

Again, this is a reputable international company and it submitted an appropriately professional bid. Whilst HD's royalty proposals were mid range and reasonable, their offer of a premium of $100 was low. This figure may be negotiable. They are worthy of consideration in the event of re-tendering the resource.

5.4 KAZ BID

The bid submitted by KAZ is superficial, technically unsound and contained an offer of a premium of only US$2M. The company proposed a rapid start-up of production and a gradual build-up to full production over a number of years, an approach considered to be very sound. However, they proposed to operate a smelter on a similar basis of starting small and gradually building up, which is considered to be impractical.

The narrative submission lacks detail and professionalism, although the financial model (Excel workbook) is possibly the most comprehensive of all the submissions. The bid is not considered worthy of further discussion.

5.5 STRIKEFORCE BID

This consortium is relatively unknown in comparison with PD & HDI but submitted a comprehensive and professional proposal which is well worthy of re-consideration. It tended to gloss over certain aspects, simply referring to a need for further studies.

Their proposals on royalties were modest, supported by reference to international norms, whilst their offer of a phased premium payment of $320M was uncomplicated and the highest after MCC. It is probably the highest realistic bid as a premium.

The Strikeforce submission is considered possibly the closest to the best deal likely to be achieved with realistic expectation of fulfilment. They may also be the most likely of the three recommended bidders (the others being PD & HDI) to be interested in bidding again under the changed conditions of 2014.

5.6 GENERAL

With one exception, KAZ, the bidders worked on a long-term copper price of $1.25/lb which was, by international consensus, regarded as the most likely outlook. Despite the very high quality of the resource, in today's dollars a price at that level would not provide an even remotely acceptable return on the investment required for Aynak, given the prevailing country risk.

It is my perception that the MCC bid looked extremely attractive but was actually unrealistic & unlikely to ever be brought to fruition. In any financial model of the project, the very favourable premium offered would have had the effect of dramatically increasing the capital cost, whilst the exceptionally high royalty rate would have permanently impacted on annual profits for the life of the mine. On actual copper prices which have prevailed since 2008, the royalty payments would always have been at the maximum rate of 19.5%.

I consider it very unlikely, also, that any other multinational mining company would be prepared to offer a premium much higher than around the Strikeforce bid of $320M, for reasons stated above, i.e. any more would represent an unacceptable capital cost.

In any possible new tendering of this deposit and other deposits, it is recommended that the Government should avoid looking at premiums as a source of substantial, general-purpose revenue, and rather consider the premium as a cash inflow to assist Government to meet its own commitments in supporting the project and the mining industry. It is appreciated that Government tends to view the premium as payment for a resource which it is selling for commercial exploitation, but it is recommended that Government place more emphasis on

the other benefits accruing to the country and to the fiscus: direct and indirect taxes including royalties, and the multiplier effect of support and downstream industries and the taxes they pay.

It is similarly recommended that Government should not have unrealistically high expectations in respect of royalty rates. The 19.5% offered by MCC and the nominal but meaningless rate of 22.5% proposed by Phelps Dodge are, in my view, unrealistic as they represent a massive drain on cash flow and return on investment over the entire life of the mine. I would recommend that Government be prepared to consider much more modest percentages but with no limit (maximum OR minimum) linked to any arbitrary cut-off price. The principle is that in the event of a period of exceptionally high prices, both parties should share the windfall.

I personally consider the following formula reasonable and fair to both parties:

R (%) = 5P - 5 with no upper or lower limit, resulting in the following range of percentages:

P ($/lb)	0	0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
R (%)	0.0	0.0	0.0	2.5	5.0	7.5	10.0	12.5	15.0	17.5	20.0

At current prices and in the copper price range that might be viable today, that would result in royalties fluctuating in the range of 7.5 - 15%, significantly higher than international norms.

Phelps Dodge, Hunter Dickinson and Strikeforce all planned to operate without a smelter, but to review the viability of hydrometallurgical production of cathode copper using SX-EW technology. This is in line with the views expressed by the Chilean advisors and also the Managing Director of Palabora Mining Company when visited in February 2013.

In the event of any decision by Government to re-tender the Aynak deposit, the process needs to be thoroughly thought through and carefully planned.
As a preliminary principle, however, it is recommended that three companies:
i) Phelps Dodge;
ii) Hunter Dickinson; and
iii) Strikeforce
should be invited to submit expressions of continued interest.
Assuming such interest, they should be invited to update and re-submit their original proposals for consideration

Vaughan Smith

Team Leader, GAFAG Aynak Compliance Monitoring Project

APPENDIX 1 CRITERIA IN GUIDELINES: SELECTION OF PREFERRED BIDDER

(a) Proposed plan of work;
(b) Financial and technical capacity;
(c) Evidence of previous mineral exploration and international mining experience in the copper mining industry;
(d) Evidence of commitment to environmental protection and sustainable development;
(e) The socio-economic benefits that may accrue to Afghanistan; and
(f) Proposed financial benefits to Afghanistan.

APPENDIX 2 SUMMARY OF SPECIFIC KEY REQUIREMENTS OF BIDS AS PER GUIDELINES

TECHNICAL

Production to commence within 84 months of issue of license

Approach to mitigation of technical challenges (NOTE: this would include lack of phosphate)

Stated commitment to World Bank Environmental & Social Safeguard policies; statement of ESIA methodology including baseline surveys & security management protocols.

FINANCIAL

Specification of the amount of the MC execution payment by Bidder & bid amount / payment schedule - assumed to refer to what is now known as "the Premium."

Proposals for local procurement & for training & employment of local personnel.

Equity or participation of Government & local parties

Taxation & royalty payments based on World Bank recommendations & conforming to Afghan law.

APPENDIX 3 SUMMARY OF SPECIFIC KEY POINTS OF THE MODEL MINING CONTRACT

Provision for premium payments & a structure for progress payments of the premium.

Provision for minimum expenditure per hectare of the license area, within a specified period.

Royalty payments to be as per Exhibit 4 of the Model Mining Contract. Exhibit 4 is not included in the draft supplied. However, the RFP (Adobe Acrobat ((PDF) document) contains a royalty formula as Exhibit 5. The proposal in this document includes a table showing a relationship between royalty (%) & copper price (US$/lb) ranging from a minimum of 2.5% at $1.00/lb to a maximum of 15% at $2.00/lb.

It also shows a formula with a lower limit of 2.55 at $1.00/lb and, apparently, no upper limit. The formula is:

Royalty (%) = copper price (US$/lb) x 10 - 7.5% which equates to 12.5% at $2.00/lb.

Project security (including de-mining): costs to be the responsibility of the company.

Transportation, power & infrastructure facilities acknowledged to be limited: cost & allocation of responsibility to be negotiated.

Local purchasing and training & employment of Afghan nationals to be maximised. Schedule of local employment as per final AMC.

APPENDIX 4 COMPARISON OF BIDS

Table 3: Standardised Summary Comparison of Bids

CO.	PRODUCT	OUTPUT	PROCESS	INVESTMENT	PREMIUM	ROYALTY			LIFE OF MINE
UNIT				US$M	US$M	% MAX	% AT $2.50	% AT $3.00	YEARS
MCC	Cathode	198kt/A	Conc, Sm, Ref	2,833	808.0	19.5	19.5	19.5	20
HDI	Concentrate, cathode from Yr. 9	272kt/A	Conc, SX-EW	1,738	100.0	15.0	9.8	12.4	22
PD	Concentrate	200kt/A	Conc, possible SX-EW later	853	243.4	11.3	9.1	7.6	14
SF	Concentrate	180kt/A	Conc, possible SX-EW later	2,389	320.0	7.5	7.5	7.5	30
KAZ	Cathode	310kt/A	Conc, Sm, Ref	2,208	2.0	18.1	18.1	18.1	30

HDI	HUNTER DICKINSON
KAZ	IFK CONSORTIUM
MCC	MCC CHINA
PD	PHELPS DODGE
SF	STRIKEFORCE

	HDI	MCC	KAZ	PD	SF
GUSTAVSON REPORT: CAPEX	1,738	2,208	2,091	864	2,389
GAF REPORT: INVESTMENT	1,738	2,833	2,208	853	2,389

NOTES

1) Production rates ignore ramp-up rates in first years and later expansion plans.

2) SX-EW is solvent extraction-electrowinning, a technology to produce cathode copper without smelting.

3) Investment includes capital cost of construction and premium payment.

4) Phelps-Dodge (PD) royalty rate recognises maximum payment of $100M/annum; percentage calculated on 200kt/annum of copper product.

5) Life of Mine as per technical proposals, which recognise possible extension.

6) GAF investment figures taken directly from financial proposals; source of Gustavson capex figures unknown

Table 4: Detailed Comparison of Bids

COMPANY & NATIONALITY	PRODUCT DESCRIPTION, CAPACITY & PRODUCTION	INVESTMENT (US$)	TIME TO COMMERCIAL PRODUCTION, EMPLOYMENT	POWER SOURCE	PREMIUM (US$)	ROYALTY (%)	OTHER FINANCIAL
MCC (CHINA) **(MCC)**	Cathode Cu Capacity 220kt/a Prod 198kt/a Ore handling capacity 13.6mt/A	$2.833bn	5 Years 4,208 direct jobs	400MW coal-fired power station	$808M phased 60 days: contract signed: 10% FS completed: 20% commercial prod: 70%	Cu PRICE ($/lb) / RATE (%) ≤1.00 — 3.0 1.25 — 6.0 1.50 — 9.0 1.75 — 12.0 ≥2.00 — 19.5	Cu price $1.25/lb Finance: loans 70%, equity 30% Fiscal revenue $68.75M/A @$1.25/lb
PHELPS DODGE (USA) **(PD)**	200kt/A 30kt/DAY Cu in cons (to research smelting & proprietary leach process)	$0.05bn pre-development $0.560bn construction (excluding premium)	6 years (BFS approx. 3 yrs) 2,000 jobs during construction In production phase, up to 10,000 direct & indirect jobs	Study & recommend short-term & long-term solutions	$243.4M phased	Cu PRICE ($/lb) / RATE (%) ≤1.00 — 2.5 1.25 — 6.0 1.50 — 7.5 2.00 — 12.5 2.50 — 17.5 ≥3.00 — 22.5 As per draft MC; HOWEVER, MAX of $100M/A makes these figures meaningless	Cu price $1.25/lb Est. tax & royalties 1.8bn in first 14 years LOM $690m royalties; $640M income tax; $512M dividend taxes ($135M/A direct to fiscus) Social: $2.5M/A during construction (post FS); 0.6% of net revenue = $46m over initial LOM

HUNTER DICKINSON (CANADA) **(HDI)**	Concentrate and cathode Cu (hydromet - no smelter) Mill 35kt/day Total Cu 272kt/a 50kt/A cathode After 14 years, double to 70kt/day & 100kt/A	$1.70bn total ($1.40bn excluding coal mine but including power plant)	Concentrate after 6 years; partial cathode Cu from Year 9; double production from Year 11 Life of Mine 22 years (Central Zone) Pre-feasibility: end of Year 2 BFS end of Year 4. Employment 770 direct, total 1,000 - 1,200;	100MW coal-fired Excess of 20 - 30MW to be sold to national grid prior to expansion of production	$100M	A minimum of 1% at Cu anywhere below $1.00/lb, increasing to 2% at $1.00/lb, increasing by a formula, to a maximum of 15% at Cu $3.50 & above	Cu price $1.25/lb Fiscal revenue $2.0Bn (LOM) Socio-economic expenditure $200M (LOM); including $35M pre-construction LOM benefit to Afghanistan economy $3.5Bn. Finance: 60% equity, 40% loans.
KAZAKHMYS - KANIMANSUR IFK CONSORTIUM (KAZAKHSTAN) **(KAZ)**	Cathode from smelter 20Mt/A producing 310kt/A cathode Cu	$2.208bn	2 years to concentrate and cathode, starting at 20kt & building up to full capacity over 7 years	180MW: sources vague	$2M once-off	18.1% flat rate	Cu price $3.31/lb Social investment of "up to" $3.0M/A Plus expenditure on training of employees of "up to" $2.0M/A

STRIKEFORCE LTD (UNITED KINGDOM) **(SF)**	Mining 10Mt/A Production 180kt/A Cu in concentrates To examine the option of a smelter & alternative technologies	$2.4bn	3-4 years. Produce in Yr 3 from heap leach & open pit. Production from open pit alone, 180kt/A from 2015 to 2021, continuing at same rate with some U/G included, from 2022 to 2040 LOM 31 years Employment 4,000 during construction & 1,200 during operations phase, plus 2,500 contractors (40% expats to start, steadily diminishing)	Purchase from local source (NEPS scheme) Requirement 105MW	$320M phased	2.5% at $1.50/lb & below; linear increase to a maximum of 7.5% at prices of $2.50 & above	Cu price $1.25/lb $3.9bn total economic benefit at $1.25 (including premium & royalties $548M) Aynak Trust Fund initial contribution $1M. Annual social expenditure 0.1% of gross revenue, minimum $1M/A. Increase in real GDP 8.5% & per capita 2.6%. Cumulative exports $17.9bn

Table 5: Detailed Comparison of Premium Payments

COMPANY	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	TOTAL
MCC AS PER CONTRACT	80.8		161.6			565.6		**808.0**
MCC ACTUAL	80.8			53.0	50.0			**183.8**
PHELPS DODGE AS PER BID	12.5	7.5	17.5	7.5	27.5	7.5	163.4	**243.4**
PHELPS DODGE ON ACTUAL RESOURCE	12.5	7.5	17.5	7.5	27.5	7.5	270.0	**350.0**
HUNTER DICKINSON	25.0	25.0		20.0			30.0	**100.0**
KAZ	2.0							**2.0**
STRIKEFORCE	32.0	32.0	64.0	192.0				**320.0**

Table 6: Comparison of Proposed Conditions for Calculating Royalty Rates

COMPANY	FORMULA	MINIMUM	MAXIMUM
MCC	R (%) = (10P – 7.5)x120%	N/A	15% X 120% = 19.5% Cu **>**$2.00/lb
PHELPS DODGE	R(%) = (10 P– 7.5)	2.5% at Cu **<** $1.00/lb	22.5% at Cu **>** $3.00/lb
HUNTER DICKINSON	R (%) = ((P - 1.00)*(0.13/2.5) + 0.02)	1% at Cu $1.00/lb	15% at Cu **>**$3.50/lb
KAZ	18.1% FLAT RATE	N/A	N/A
STRIKEFORCE	R(%) = 5P - 5	2.5% at Cu **<** $1.50/lb	7.5% at Cu **>** $2.50/lb
R (%) = ROYALTY %		**P = PRICE OF COPPER (US$/lb Cu)**	

Table 7: Comparison of Royalty Rates (%) VS. Cu Price US$/lb

COMPANY	1.00	1.25	1.50	2.00	>2.00	2.50	3.00	3.50
MCC	3.0	6.0	9.0	12.0	19.5	19.5	19.5	19.5
PHELPS DODGE	2.5		7.5	12.5		17.5	22.5	22.5
PHELPS DODGE EFFECTIVE	2.5		7.5	11.3		9.1	7.6	
HUNTER DICKINSON	2.0	3.3	4.6	7.2		9.8	12.4	15.0
KAZ							18.1	18.1
STRIKEFORCE	2.5	2.5	2.5	5.0		7.5	7.5	7.5

ASSUMPTIONS

Phelps Dodge produce 200,000 tonnes per annum; $100M maximum payment in a single financial year.