# Namibia IPP and Investment Market Framework Technical Assistance

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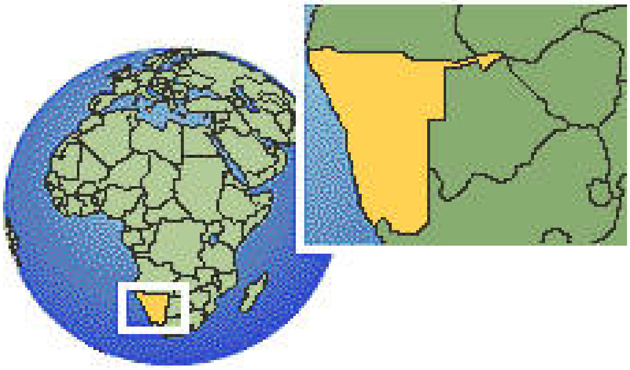
## Volume II: Annex 12

## MODEL FUEL SUPPLY AGREEMENT

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# Annex XII: Model Fuel Supply Agreement

This annex contains the major clauses of a fuel supply agreement (FSA) with greater detail than the outline of the FSA in Section VII.A. of the main report. This FSA outline is based on clauses that were developed for a 900 MW project in East Asia by The CORE Team Leader, Donald Hertzmark. The client for this work was a major International Oil Company and this term sheet conforms to the important FSA requirements of large IPP projects.

**FSA Generic Clauses**

| Clause | Terms & Conditions |
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| **Parties** | Aaa Namibia Power (buyer) and bbb fuel company (seller) |
| **Term** | Commencing one month prior to the startup of the plant and running for 20 years or the term of the PPA |
| **Termination and Cancellation** | Conditions for either party to terminate the contract and cancellation provisions for breaches of the contractual provisions |
| **Conditions Precedent** | Conditions on buyer to have financing and facilities for fuel receiving and storage |
| **Source of Fuel** | Plant located at [ ] conversion plant in [ ], [Country]. Source of fuel supply [field] and [capacity], [production rate] Fuel supply is based on reserves in [ ] gasfield, which contains [ ] MMCF of recoverable natural gas. At a planned production rate of [ ] MMCF/year, this gas will be converted to [ ] tonnes/year of [specified fuel type], which is equivalent to [ ]% of the fuel requirements of the buyer's [country in which IPP is located] power plant. |
| **Substitute Sources** | Seller may supply [fuel type] to buyer from [conversion plants] plants located at [ ] in [country]. Any cost increases resulting from such substitution shall be borne by seller.<br><br>Substitute fuel is agreed to be [specified substitute fuel] if seller is unable to deliver [fuel type] to the buyer,<br><br>Seller will supply [specified substitute fuel] from [ ] or [ ] refinery. |
| **Provisions for supply of [specified substitute fuel]** | Seller will notify buyer of inability to deliver [fuel type] within [ ] hours of seller's knowledge of such event<br><br>Seller will provide buyer with volume of [specified substitute fuel] equivalent to [ ]% of scheduled [FUEL TYPE] deliveries on power output equivalence basis (I need some guidance on the down/uprating of the CCGT on [specified substitute fuel] vis-à-vis [FUEL TYPE])<br><br>Seller's right to furnish substitute fuel shall not affect its right to claim a force majeure or to claim excuse pursuant to Article [ ]. |
| **Shipments** | The quantity of the [FUEL TYPE] to be sold and purchased hereunder shall be at least [850,000?] tonnes per calendar year. Seller shall deliver to buyer [FUEL TYPE] at the average rate of [ ] tonnes per week.<br><br>Buyer shall notify seller of planned outages and fuel delivery |

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| | schedule shall be adjusted appropriately.<br><br>Seller shall have the right to "cover" a late, missed or insufficient fuel delivery by making up the appropriate volume of fuel within [ ] weeks.<br><br>Buyer shall have right to purchase at least [ ] additional tonnes of [fuel type] per year for use in buyer's power plant.<br><br>Buyer may reject a shipment if it contains a substantial defect that is not "curable" [section on fuel quality and measurement] |
| **Breaches** | Both the buyer and the seller have the right to adequate assurance of performance. This includes, *inter alia*,<br>[company to fill in]<br>Material Default: Quantity [seller to fill in]<br>Material Default: Quality [seller to fill in] |
| **Transportation, Scheduling & Facilities** | Delivery to be made by seller to buyer's receiving terminal in [ ] [country].<br><br>The Delivery Point is defined as the inlet valve of the buyer's terminal facilities.<br><br>Seller shall be responsible for arranging all transportation contracts and scheduling and coordinating the arrival of [FUEL TYPE] tankers to [ ] [country].<br><br>Seller shall notify buyer regarding proposed delivery schedule at the beginning of each calendar month.<br><br>Buyer will accept as much as [ ] tonnes of [FUEL TYPE] in one shipment and as much as [ ] tonnes in any one month in order to make up amounts unshipped previously during that Contract Year.<br><br>Buyer shall not be required to accept delivery for or to pay for any amounts in excess of the commitments for that Contract Year.<br><br>Buyer shall be responsible for providing storage for [FUEL TYPE] equivalent to [ ] days consumption of [FUEL TYPE] at buyer's power plant.<br><br>Seller is responsible for paying all shipping charges up to the delivery point.<br><br>Buyer is responsible for all costs of unloading and storage of [FUEL TYPE] fuel or substitute [specified substitute fuel] fuel. |
| **Quality** | [FUEL TYPE] shall be fuel grade and shall have the following characteristics and tolerances:<br>[ ] [buyer] to complete<br><br>Fuel grade [specified substitute fuel], provided as a substitute fuel shall have the following characteristics and tolerances<br>[ ] [buyer] to complete |
| **Exchange Rates** | The conversion of foreign currencies to [local currency] shall be at the prevailing rate of exchange on a date specified in the relevant |

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| | clause of the contract by a bank or agency mutually agreed-on by the Seller and the Buyer. |
| **Force Majeure** | Reasons for invoking Force Majeure clause and proposed remedies.<br><br>Burden of proof on party claiming the Force Majeure<br><br>Written notice to be provided by party claiming Force Majeure no later than 48 hours after incident giving rise to Force Majeure claim. |
| **Commercial Impracticality ("Excuse")** | A clause sometimes invoked if a pricing provision is such that the cost of the fuel makes profitable operation of the power plant or profitable sale of the fuel impossible after some period of time. This type of clause may exist if there is a possibility that the fuel price could become unhinged from either the costs of production of the fuel or its value as a power plant fuel.[1] This is essentially a renegotiation clause that contains the parameters within which such renegotiations might take place. |
| **Demurrage** | Costs of demurrage shall be paid by buyer if delivery or offloading is delayed due to actions or inactions of buyer.<br><br>Costs of demurrage shall be paid by seller if delivery or offloading is delayed due to actions or inactions of seller.<br><br>Costs of demurrage shall be negotiated by buyer and seller if delivery or offloading is delayed by parties other than buyer or seller. |
| **Insurance** | Seller shall provide comprehensive marine insurance and other such insurance policies as buyer shall reasonably request and will furnish proof of such insurance.<br><br>Such insurance shall cover both bodily injury and property damage as well as environmental liabilities as may be defined by the parties.<br><br>Buyer shall provide insurance covering bodily injury, property damage and environmental liabilities for its docks, piers, tanks, pipelines, fuel trucks and other assets that stand between the delivery point of the seller and the power plant gate. |
| **Delivery Point** | The delivery point shall be the inlet valve of the buyer's sea terminal in [location] [country]. Prices for delivered [fuel type] fuel shall be calculated CIF the delivery point. |
| **Inflation Index (USD)** | The price adjustment index for US dollar costs shall be the US Wholesale Price Index for the year in question. |
| **Inflation Index (NTD)** | The price adjustment index for [local currency] costs shall be the [agreed-to local Price Index]. |

[1] Consider, for example, of the problems that arise when a fuel contract has adjustment intervals that gradually become too slow for a more volatile market (think gas in California and Northern Mexico) and the fuel intermediary is obliged to supply product to the customers for far less than its cost of acquisition. From the other side, think about the problems for generators if the volatility of gas prices exceeds the adjustment intervals of the offtake market, electricity.

## *Pricing Provisions*

Three different types of pricing provisions are presented here.

1. A direct link to LNG, refined oil products or other fuels is called the market basket approach.
2. A mixture of fixed and market prices with escalation & adjustment provisions for the fixed components is called the coal approach.
3. A netback methodology that relates prices at both ends of the transaction to market levels is called the Trinidad approach.

The market basket approach can have two variants. In one case, the price of [fuel type], CIF, is simply tied to the [local price index] price of LNG by a fixed formula on an energy equivalent basis. In the second case the price of [fuel type] is tied to a basket of factors, one of which is LNG.

It is difficult to compare each of these three approaches clause for clause. Instead, it is better to compare the totality of the pricing approach in one type of contract vis-à-vis the others. The discussion of the various weighing schemes is part of the analysis of the strengths and weaknesses of each option. The reader should note that specific prices for energy or weight are simply for expositional purposes and should not be taken as indicative of appropriate values in the context of a Namibian IPP project.

## Market Basket Approach

| **Clause** | **Terms & Conditions** |
|---|---|
| **Floor Price** | The minimum price for the [fuel type] fuel product shall be US$2.75 per mmbtu in USD 2001. This price will be adjusted for inflation by the relevant USD price index. |
| **Ceiling Price** | The maximum price for the [fuel type] fuel shall be US$8.50 per mmbtu in USD 2001. This price will be adjusted for inflation by the relevant USD price index. |
| **CIF Price (Variant 1, LNG)** | **The price of the [fuel type] product at the delivery point shall be equal to 95% of the [local] LNG price**, converted to USD per mmbtu, prevailing at the time of delivery. The [local] LNG price shall be obtained from the publication [ ] published by the [local]. If the price of LNG as established by [local] would take the [fuel type] fuel price calculated therefrom above or below the ceiling or floor, respectively, then the price of the [fuel type] fuel will be the appropriate maximum or minimum price.<br>The LNG price is given in [local currency] per m$^3$ and shall be converted to USD per mmbtu as follows:<br>LNG price (USD per mmbtu) = [local] Gas Price ([local currency] per m$^3$) / exchange rate / (m$^3$/ft$^3$) / HHV gas (btu/ft$^3$) * 1,000,000<br>[fuel type] price (USD per mmbtu) = LNG price * 0.95<br>One variant of this pricing formula is the LNGzz, i.e.,<br>[fuel type] price (USD per mmbtu) = LNG price * zz% |
| **CIF Price (Variant 2, energy commodity basket)** | **The price of the [fuel type] fuel product at the delivery point shall be equal to the weighted average of the following products:**<br>• LNG<br>• Naphtha<br>• Kerosene<br>• Chemical [fuel type]<br>The formula for establishing the CIF price will be as follows:<br>MEOH price = 0.4 * LNG price + 0.25 * naphtha price + 0.2 * kerosene price + 0.15 * chemical [fuel type] price.<br>The LNG price shall be the [local company] price in effect at the time of the delivery. The LNG price is given in [local currency] per m$^3$ and shall be converted to USD per mmbtu as follows:<br>LNG price (USD per mmbtu) = [country] Gas Price (NTD per m$^3$) / exchange rate / (m$^3$/ft$^3$) / HHV gas (btu/ft$^3$) * 1,000,000<br>The [specified substitute fuel][2] price shall be the five-day average price in Platt's APAG Marketscan Oilgram Price Report plus or |

[2] The oil product prices used can be the [local company] prices for the respective products, if price controls on such oil products and feedstocks are still relevant at the time of plant startup.

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| | minus any applicable discounts or premiums. Prices reported in US$/tonne shall be converted to US$/mmbtu as follows:<br>[specified substitute fuel]price (USD per tonne) = APAG Naphtha Price (USD per tonne ± locational adjustment) / HHV (mmbtu/tonne)<br>The Kerosene price shall be the five day average price in Platt's APAG Marketscan Oilgram Price Report plus or minus any applicable discounts or premiums.<br>Kerosene price (USD per tonne) = APAG kerosene Price (USD per tonne ± locational adjustment) / HHV (mmbtu/tonne)<br>The [fuel type] fuel price shall be the weekly price reported in the [Chemical Marketing Reporter?] for [local pricing point] plus applicable freight costs.<br>[fuel type] price (USD per mmbtu) = CMR [fuel type] Price (USD per tonne ± locational adjustment) / HHV (mmbtu/tonne) |
| **Price Decontrol** | In the event that the price of LNG or other fuels are decontrolled by the [Government], the parties shall agree to a new LNG benchmark price. Until the parties can agree to such a price, the LNG price used in the contract shall be the last price established prior to decontrol.<br><br>***Note***: one suggestion for this component *post decontrol* is to decompose the LNG price into its typical market basket components. For example, the pricing formula for the European offtake purchaser of Atlantic LNG (landed in that country) is simply the following one:<br>LNG price = 0.5 * Gasoil price + 0.3 * LSFO price + 0.2 * HSFO price (all prices are prevailing ones in home country in Europe)<br><br>Other LNG pricing formulas exist as variants of the [European purchaser] offtake formula, usually based on competing products and crude oils, with varying weights and some with LNG premiums, reflecting reduced pollution or other considerations. |

## The Coal Approach

| **Clause** | **Terms & Conditions** |
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| **Floor Price** | The minimum price for the [fuel type] fuel product shall be US$3.25 per mmbtu in USD 2001. This price will be adjusted for inflation by the relevant USD price index. |
| **Ceiling Price** | The maximum price for the [fuel type] fuel shall be US$6.50 per mmbtu in USD 2001. This price will be adjusted for inflation by the relevant USD price index. |
| **CIF Price**<br><br><br><br>**Calculation of the Natural Gas Opportunity Cost**<br><br><br><br><br><br><br><br><br>***LNG Netback***<br><br><br><br><br><br><br><br>**[fuel type] Gas Netback**<br><br><br><br><br><br><br>**[fuel type] Pricing Formula** | **The price of the [fuel type] fuel shall be the sum of the following elements:**<br>• Natural gas at [fuel type] plant inlet<br>• Conversion to [fuel type]<br>• Transport of [fuel type] to [ ] [country]<br>The natural gas price shall be based on the opportunity cost of the gas as an input to LNG or [fuel type] – i.e.,<br>Natural Gas Cost = 0.65 * LNG netback + 0.35 * [fuel type] [refinery or chemical] netback[3]<br><br>Conversion costs for both LNG and methanol shall be based on the expected non-fuel plant costs - O&M, chemicals, labor, management, financing. These costs shall be fixed in real terms and non-capital costs shall be adjusted on January 1 of each year with the appropriate inflation index. Regasification and logistics costs shall be treated equivalently. For the first year, the conversion cost for LNG is [$70/tonne] and the regasification/logistics cost for LNG is [$61/tonne].<br><br>Transport costs for both LNG and [fuel type] shall be equal to the normal costs of freight by chartered vessel from the source to the delivery point and shall be paid by the seller. Transport costs shall be adjusted quarterly according to freight cost index [ ]<br><br>Calculation of the natural gas netback for LNG at the LNG plant inlet shall use the following formula:<br>Gas netback value$_{LNG}$ = LNG price – Transport cost 1 – Conversion cost, where<br>LNG price = [0.5] * Gasoil price + [0.35] * LSFO price + [0.15] * HSFO price (all prices posted in Singapore and averaged over previous 3 months)<br>Conversion cost = $70/tonne<br>Transport cost 1 (WA-SIN) = $35/tonne<br>Transport cost 2 (WA-TAI) = $45/tonne<br>Regasification & logistics cost (TAI) = $61.45/tonne |

[3] There is a numerical "trick" here as the weighted average plant inlet netback becomes the total gas cost (final product basis). This is one way to convert a commodity normally sold by weight to an energy basis price.

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| | Calculation of the natural gas netback for [fuel type] at the methanol plant inlet is calculated in a similar way:<br>Gas netback value$_{\text{[fuel type]}}$ = [fuel type] price (CIF) – Transport cost – Conversion cost, where<br>[fuel type] price = [$165/tonne] CMR price CIF [price basing point] (averaged over previous 3 months)<br>Conversion cost = $45/tonne<br>Transport cost 1 (source to basing point) = $35/tonne<br>Transport cost 2 (source to country) = $40/tonne<br><br>**[fuel type] price ($ per mmbtu)**<br>**= Conversion + Transport 2 + Logistics + Weighted Gas Netback** |
| **Numerical Example – use of fuel methanol in CCGT power plant** | To get the gas netback value for LNG use the following [basing point] product prices (US$/tonne):<br>• Gasoil price = $230<br>• LSFO price = $175<br>• HSFO price = $140<br>⇒ LNG price (CIF) = $197/tonne |
| ***LNG Price*** | LNG price (CIF) less transport ($35) = $162/tonne (FOB)<br>LNG price (FOB) less conversion ($70) = $92/tonne<br>Gas use in LNG conversion, including fuel = 55 mmbtu/tonne<br>**∴ gas netback value for LNG = $1.67/mmbtu** |
| ***Methanol Price*** | To get the netback for gas input to methanol, use a similar process:<br>Methanol price (FOB) = $165 – $35 = $130/tonne<br>Methanol price (FOB) less conversion ($45) = $85/tonne<br>Gas use in Methanol conversion, including fuel = 39 mmbtu/tonne<br>**∴ gas netback value for Methanol = $2.18/mmbtu** |
| **Gas Netback Value** | **The corresponding gas netback value is 0.65 * $1.67 + 0.35 * $2.18**<br>= $1.85 per mmbtu ⇔ $72.09 per tonne of methanol |
| **Methanol Price Calculation** | Using the mmbtu of methanol equivalent gas netback[4], add the relevant conversion, transport and logistics costs and arrive at the landed price of Methanol fuel in Taiwan:<br>**MEOH price ($ per mmbtu)**<br>**= Conversion + Transport 2 + Logistics + Weighted Gas Netback**<br>**= $2.38 + $2.12 +$0.25 + $1.85** |

[4] Note that this calculation must be performed using energy units first. If mass is used, then the high energy value per tonne of LNG (more than twice that of MEOH) will increase the per mmbtu price of MEOH to a figure well beyond the LNG price in energy equivalent terms. For example, the figure in the text of $124.67/tonne of MEOH fuel would become more than $190/tonne of MEOH if calculated in mass terms, or more than $10/mmbtu, a commercially unsustainable price.

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| | **= \$6.60/mmbtu ⇔ \$124.67/tonne.** |

## The "Trinidad" Approach

The Trinidad approach relates the final product price to the gas price via a series of adjustment factors. To cope with periods of extremely high or low prices, there may be both ceiling and floor prices, along with temporary releases from ceilings and floors, with subsequent truing-up. In the approach shown below, there is a floor price but no ceiling, with the upward movement of gas prices attenuated by the appropriate adjustment factor. The idea behind the Trinidad approach is that there should always be an incentive to operate the conversion plant. This method has been used successfully for LNG, methanol and ammonia conversion facilities in Trinidad, the world's largest exporter of gas-based chemicals and fuels.

| **Clause** | **Terms & Conditions** |
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| **[fuel type] Floor Price** | The minimum price for the [fuel type] product shall be [US$95] per tonne in USD 2001. This price will be adjusted for inflation by the relevant USD price index. |
| **[fuel type] Ceiling Price** | The maximum price for the [fuel type] shall be [US$225] per tonne in USD 2006. This price will be adjusted for inflation by the relevant USD price index. |
| **[fuel type] Reference Price (2006-2010)** | The base price scenario for [fuel type] that is assumed for the duration of the project construction period. This reference price scenario yields an initial sales price of [fuel type] as well as an initial sales price of natural gas to the [fuel type] plant. For the current project, this forecast could well have two [fuel type] prices, one for fuel markets and the other for chemical markets. |
| **[fuel type] Reference Price Escalator** | A price escalation factor that relates the price of [fuel type] to an agreed-upon gas pricing framework. The [fuel type] reference price scenario sets the upper and lower limits for natural gas prices and for the activation of the various make-up, true-up and temporary price adjustment factors. The [fuel type] reference price escalator is used to establish a pricing schedule for [fuel type] for the life of the FSA. This schedule sets up a relationship between [fuel type] and gas in [fuel source] that permits both plants to operate at high levels. |
| **Natural Gas Reference Price** | For each year of the FSA, there will be a natural gas reference price. This price represents one that is sufficient for the gas producer to make reasonable returns while remaining consistent with the needs of the conversion plant to produce a competitive fuel. |
| **Natural Gas Floor & Ceiling Prices** | In the event that [fuel type] prices are above or below agreed-upon levels, then gas will approach or even exceed predetermined ceiling or floor levels. An adjustment factor is used to adjust the natural gas input price to the actual methanol price path if it differs from the reference [fuel type] pricing scenario. In this approach the gas floor price will have three or more sets of adjustment factors. These adjustment factors can include the following:<br>Gas Floor/ceiling price adjustment factors:<br>• For product prices below reference price<br>• For product prices between reference price and ceiling price<br>• For product prices above ceiling price |

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| **Duration of Floor Price** | The floor price will be in effect for no longer than one calendar year. |
| **Duration of Ceiling Price** | The ceiling price will be in effect for no longer than one calendar year. |
| **Gas Price Credit** | If the gas netback is below the floor price by more than a specified amount (called the Gas credit trigger) then the gas producer will receive the gas credit price for that year (a price below the floor). However, the conversion plant owner will be liable for payment of the floor price on a deferral basis of no more than 12 months, such that credits will be paid off in the year after the credit is given, provided the gas price is above the floor value. All credit calculations will cease after year 10 of operation of the methanol plant and all credits/debits will be trued-up. |
| ***Note*: One of the ends of this equation needs to be fixed by market forces. So we can accept the gas netback price given by alternative uses (e.g., LNG) and net the price forward to {receiving country] (similar to the Coal case above) or we can take a [fuel type] market price and net it back to the conversion plant inlet valve. The big difference in this case is that both the gas producer and the [fuel type] consumer will have limits on the prices received or paid that limit downside risk (and upside gains, too) for the power plant while allowing some very high prices on the gas side, markets willing.** | |
| **Suppose we start with the [fuel type] price and net backward to the [fuel type] plant inlet valve in [source country].** | |
| **[fuel type] Price** | The [fuel type] price can be set using any of the methods described above. For the sake of simplicity, we shall use the LNG90 pricing formula described above.<br>[fuel type] price (USD per mmbtu) = LNG price * 0.90 |
| **Gas Netback Value** | The Gas netback value at the plant gate in [source country] is calculated by the [local company] LNG price-based formula (in energy units). Using the previous cost figures for logistics, transport and conversion of [fuel type] , the gas netback value is calculated as:<br>[fuel type] price (FOB) = ([fuel type] price (CIF) – Logistics cost -Transport cost 2, where<br>[fuel type] price (CIF) = [country] LNG price (CPC) * 0.90<br>Logistics cost = \$4.75/tonne ⇔ \$0.25 per mmbtu<br>Transport cost 2 (source country to receiving country) = \$40/tonne ⇔ \$2.12 per mmbtu<br>Conversion cost = \$45/tonne ⇔ \$2.38 per mmbtu<br>If the [fuel type] price = \$6.50 per mmbtu on an LNG90[5] basis (⇔ \$122.79/tonne), then the [fuel type] FOB price is:<br>\$6.50 - \$0.25 - \$2.12 = \$4.13 per mmbtu ⇔ \$78.02/tonne of [fuel type]<br>The [fuel type] price (FOB) will be used to calculate the differentials between the reference [fuel type] price and the actual [fuel type] price, for purposes of establishing the gas netback value. |
| **Calculation of** | For each year of the FSA there will be a Gas Reference Price. This |

5 Note that the LNGzz price of \$6.50/mmbtu implies a CPC LNG price of \$7.22/mmbtu ⇔ \$355.04/tonne.

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| **the Gas Price** | schedule of Gas Reference Prices for each year will be used to adjust the actual gas price paid up or down in any given year.<br><br>For each year of the FSA there will be a [fuel type] Reference Price. This schedule of [fuel type] Gas Reference Prices for each year will be used to adjust the actual gas price paid up or down in any given year. |
| **[fuel type] Prices Below the Reference Price** | For gas netback values below reference price, the gas producer will receive from the [fuel type] plant owner the floor price for that year. The differential between the netback value and the floor price will be repaid by the producer to the [fuel type] plant owner in the year following the receipt of the credit. All gas credit calculations will cease after ten years of operation of the [fuel type] plant.<br><br>That is, for $P_{mt} < P_{mrt}$, $P_{gt} = P_{grt}$ – [factor$_x$]*($P_{mrt}$-$P_{mt}$), where |
| **[fuel type] Prices Above the Reference Price** | $P_{mt}$ is the actual [fuel type] price in year t<br>$P_{mrt}$ is the reference [fuel type] price in year t<br>$P_{gt}$ is the actual gas price in year t<br>$P_{grt}$ is the reference gas price in year t<br>[factor$_x$] is a parameter for adjustment of the gas price.<br>A similar calculation is used for [fuel type] prices above the reference price, i.e.,<br>for $P_{mt} > P_{mrt}$, $P_{gt} = P_{grt}$ + [factor$_y$]*($P_{mt}$-$P_{mrt}$), where<br>[factor$_x$] may or may not equal [factor$_y$].<br>If the [fuel type] market price equals the reference price for that year, then the gas price = the gas reference price. |
| **Credits and Deficits** | If the results of these calculations lead to gas prices above or below the floor prices, then the credit or debit triggers come into play. These will be explained in the numerical example. |
| **Numerical Example** | Using a pricing scenario for [fuel type] (the "high" scenario), which shows the actual method of deriving the gas price; suppose that the market price for [fuel type] in 2005, the first year of plant operation, is $124/tonne, CIF. Suppose further that the conversion, freight and logistics costs are as previously specified. The FOB price of [fuel type] in that year is $73/tonne.<br><br>If the reference price of the [fuel type] in that year (FOB) is $105/tonne, then the calculation of the gas price must use the credit trigger, since the actual [fuel type] price (FOB) is lower than the credit trigger level. In this case the reference gas price of $1.05/mmbtu does not come into play since the product price is too far below the reference product price level.<br><br>The gas producer will receive $0.70/mmbtu in the current year and $0.10/mmbtu later on a deferred payment basis. The total of the gas credit for the year is $800,000.<br><br>Based on a gas price of $0.70/mmbtu, the ex plant price of the [fuel type] is $72.84/tonne. This price translates to $119.87 at the {local] County electric power plant gate or $6.35 per mmbtu. This fuel price is within the competitive range of fuel prices, based on the costs of LNG and other fuels. |

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| | If the reference price for [fuel type] is lowered to one that is more consistent with the fuel market, then the price of gas will change, with the credit trigger no longer in use. The reference gas price is used in the calculation of the actual gas price paid, since the [fuel type] price is calculated as the gas reference price for that year, i.e.,<br>Gas Price = Gas Reference Price - [factor$_x$]*([fuel type] Reference Price – [fuel type] FOB price), where<br>Gas Reference Price = $1.05/mmbtu,<br>Factor$_x$ = 0.02<br>[fuel type] Reference Price = $75.00/tonne,<br>[fuel type] FOB Price = $72.73/tonne.<br>= 1.05 – 0.02*(75-72.73)<br>= 1.05-0.045<br>=$1.005/mmbtu<br>For most likely market conditions, this method will yield gas prices in the $0.70-$1.10 per mmbtu range. The accompanying spreadsheet also allows evaluation of a “random” variation in annual prices around the base case trend. |