Eskom

SUBMISSION TO NERSA:

Two-year incentive pricing package for Sublime Technologies' silicon carbide production facility at Kriel in Mpumalanga

1. OBJECTIVE

Approval of the proposed incentive package aimed at sustaining the production of silicon carbide at the facility owned by Sublime Technologies' for at least two years to retain base sales of [redacted] GWh/annum and revenue of R[redacted]million/annum.

2. APPROVAL REQUIRED

Eskom is granted approval to implement the following incentive pricing arrangement for Sublime Technologies' silicon carbide production to retain base sales of [redacted] GWh/annum and revenue of R[redacted]million/annum:–

2.1 A two-year incentive package, effective the calendar month following Nersa approval, providing a rebate on the Megaflex tariff, which reduces the effective unit electricity price (approximately [redacted] c/kWh) to approximately [redacted] c/kWh (the minimum price level) for the remainder of 2017, assuming normal operations;

2.2 The rate for 2018, effective 1 January, will be increased by the SA PPI ratio of November 2017 over November 2016; and this escalation methodology will apply for any subsequent calendar years;

2.3 In return, the customer will :-

2.3.1 Make available approximately 90% of the applicable load for the System Operator's (SO) demand response (i.e. interruptibility) for forty hours per month; available every day for maximum two hours, and no more than twice a day;

2.3.2 Be liable for a minimum consumption payment based on 80% of normal consumption over each calendar quarter, provided that Eskom will adjust the requirement for substantiated significant events that prevented the customer from operating at normal levels;

2.4 Should either party find that changed circumstances beyond its control have resulted in a level of hardship that renders the Incentive Package arrangements outlined herein unworkable –

2.4.1 The party experiencing hardship shall have the right to approach the other party to consider changes to the arrangements that would relieve the hardship, and

2.4.2 Should the parties fail to agree revised terms or Nersa fail to approve such agreed revised terms, the party experiencing the hardship shall have the right to terminate the agreement, giving three calendar months' notice.

3. BACKGROUND

3.1 <u>Sublime Technologies</u>

- Sublime Technologies (currently operating at [redacted] MVA) is South Africa's only silicon carbide (SiC) producer, situated in Kriel, Mpumalanga, and Sublime's beneficiation is of 100% South African raw materials.
- Sublime's SiC production is energy intensive in that electricity makes up >50% of costs. They compete in the global market, having no direct competitors in SA, and their business is strongly influenced by South Africa's industry global cost competitiveness.

- South Africa having a primary SiC industry leads to the establishment and/or growth of numerous downstream industries including, but not limited to foundries and stainless steel producers.
- Sublime has developed local sales of SiC to between 8000 and 12,000 tons per year over the last 5 years. Sublime believes it will be possible for the local consumption to grow to 40,000 tpa in the future. Competitively priced local production of SiC will also ensure the financial viability and growth of downstream industry users of SiC.
- At full production capacity ([redacted] MVA), Sublime employed 240 people and used over 260,000MWh of power (in 2011).
- Sublime is currently operating at 50% capacity (from 2015) and the avoidance of a complete shutdown of operations would circumvent the retrenchment of a further 108 people. Sublime has been operating at a loss and is at risk of closure.
- Electricity represents 53% of operating costs in silicon carbide production using 6.6 MWh/ton. The industry is sensitive to the electricity price, in general, if electricity is 50% of operating cost – a price increase of 10% => cost increase of 5%.
- Sublime's main sustainability challenge stems from their international competitors currently paying power prices from \$28/MWh – 40\$/MWh and Sublime paying significantly more (approximately [redacted]/MWh at R14/USD). With an incentive pricing arrangement of [redacted]/kWh, Sublime has the ability to reclaim lost market share and steadily return to full production should market conditions allow.
- Sublime has been involved in the development of Eskom's demand response products. They have participated over the past 7 years in the Supplemental Demand Response product with participation of up to [redacted] MW. Sublime also participated in the power-buyback initiative during 2012/13.

3.2 Incentive Pricing Package

- The Sublime Technologies pricing package is aligned to the short-term incentive pricing framework principles as approved by the Minister of Energy in a letter to Nersa dated 28 March 2017.
- Sublime requested incentive price was less than what Eskom has offered to Silicon Smelters; however Eskom could not establish any sound basis on which to support this.
- The proposed pricing package for Sublime is similar to that offered to Silicon Smelters (as the nature of electricity usage of their operations is very similar) except for the referencing to a commodity index price (i.e. SiC). The reasoning being the practicalities of dealing with indices with limited financial benefit and the availability of suitable commodity index price information.

4. DETAILS OF PROPOSED INCENTIVE PACKAGE

Eskom's Board has approved, subject to Nersa approval, an incentive package that was developed with the express purpose of sustaining sales volumes at Sublime Technologies' for at least two years, as follows –

4.1 Pricing package

- The pricing package is to be implemented for two years subject to Nersa governance approvals, starting the calendar month following Nersa approval.
- The package will apply to the entire Sublime Technologies plant (acc. [redacted]; Maximum Demand [redacted] MVA).

- The package has been designed to yield an average price for 2017 of [redacted] c/kWh for the energy used, which will also be the minimum price level for the duration of the package.
- The customer will be liable for a minimum consumption payment based on 80% of normal consumption (~[redacted] GWh per annum; measured quarterly i.e. ~[redacted] GWh over each calendar quarter), provided that Eskom will adjust the requirement for substantiated significant events such as network outages, planned maintenance, furnace outages of a technical nature and industrial action.
- The customer will make available approximately 90% of the applicable load for the System Operator's (SO) demand response (i.e. interruptibility) for forty hours per month; available every day for maximum two hours, and no more than twice a day.

4.2 Billing & rebate

- Monthly billing and payment will be based on the Megaflex tariff.
- The plant will invoice Eskom for the incentive amounts agreed between the parties by the 10th working day of the following month. An off-set arrangement will be entered into and Eskom will off-set (credit) the incentive rebate amount on the following month's Megaflex bill.

4.3 Package rate details

- Assuming normal operations at the plant, the package has been designed to yield an average price for 2017 of approximately [redacted] c/kWh for the energy used. This will be the minimum price level for the duration of the package.
- The initial rates for the fixed charge components (i.e. Tx Network Charge; Dx Network Capacity Charge; Dx Network Demand Charge; Service Charge and Administration Charge) as well as the variable Ancillary Service Charge will be the 2017/18 Megaflex rates applicable to this customer.
- Assuming normal operations at the plant, the modelling (using typical monthly consumption data for Feb-April 2016) indicates initial package energy rates of [redacted] c/kWh in Peak and [redacted] c/kWh in both Standard and Off-peak periods.
- The rates, yielding the effective average price of [redacted] c/kWh, will apply in 2017. The rate for 2018 will be increased by the SA PPI ratio of November 2017 over November 2016; and this escalation methodology will apply for any subsequent calendar years.
- All the above package rates (fixed and energy) will be subject to escalation as outlined above.
- The pricing package does not provide for the customer to contribute to either the Affordability or Electrification and Rural Subsidies.

4.4 Key assumptions

- It is assumed that the customer's consumption profile for Peak, Standard & Off-peak periods will remain similar to the period Feb-April 2016 (as modelled).
- Information provided by Sublime Technologies in support of the application for incentive pricing is underpinned by the potential of ceasing SiC production. Sublime's financial for 2014, 2015 (and 2016 unsigned) showed that they operated at a loss.
- Sublime Technologies' future financial performance will be sufficient to prevent it making a hardship submission to Eskom or entering Business Rescue.

- Eskom's interpretation of the clause in the EPP where the full cost of supply needs to be considered only applies in the context of long-term special pricing agreements (e.g. >20 years); and the short-run marginal cost of supply is the appropriate basis for assessment for short-term agreements.

4.5 Financial implications

- This pricing arrangement will be sustaining sales of [redacted] GWh/annum for a period of two years and will sustain revenue of ~R46million/annum, with a potential of additional [redacted] GWh of sales dependent on Sublime Technologies ability to regain market share.
- In the context of this two-year package proposal, all Eskom costs other than Primary Energy may be treated as fixed costs. No additional fixed costs (i.e. generation capital, transmission, customer service or overhead costs) would be incurred to supply this load. This is also true for distribution, with the exception that a small proportion of distribution maintenance costs may be considered variable.
- Furthermore, it is realistic to base estimations on marginal Primary Energy on coal-based generation options as: Nuclear and renewables supplies are not optional, and Interruptibility (provided by the customer) almost certainly implies that OCGT will not be used to supply the additional load.
- Eskom's estimate of the short-run marginal cost of supply is made up of –
    - Marginal coal costs for four of the five most expensive stations in respect of additional coal usage expressed c/kWh (i.e. Grootvlei, Arnot, Camden & Komati);
    - Environmental Levy in respect of the marginal coal volume;
    - Marginal water usage costs for the above stations;
    - 10% of operating costs (variable portion);
    - A 5% risk adjustment on the total of the above costs, which is assumed also to cater for the small marginal distribution cost;
    - Transmission losses @ 3% of the total determined above; and
    - Distribution losses @ 3% of the total determined above.

  (Note: Tutuka, which has the highest coal cost, was not included as a marginal station because it is run on an ongoing basis for system stability.)
- Using the above, Eskom firmly held view is that the marginal cost (i.e. an estimated [redacted] c/kWh for the current FY2018, escalated at PPI thereafter) constitutes the full cost of supply at the initiation of the proposed NPA for Sublime Technologies' (i.e. in terms of the EPP requirement).
- Thus, with the package rate for 2018 and any subsequent calendar years being adjusted for PPI, sales at the package rate will still result in a solid contribution to fixed costs. In the absence of this package, the contribution to fixed costs will have to be absorbed by other customers.

4.6 Impact on other Customers

- The fixed cost and cross-subsidy components of the customers' cost of electricity supply remain in place, whether or not the proposed short-term pricing incentive is approved and implemented.

- As the proposed incentive price level is higher than the marginal cost of supply, approval and implementation would result in a contribution to Eskom's fixed costs that would not accrue if the sales did not materialise.
- Implementation of the proposed pricing arrangement would serve to minimise the cost under-recovery to Eskom and therefore minimise price increases for other customers; thus ensuring lower average tariff rates than would be the case without these sales.

4.7 MYPD implications

- Implementation of this incentive package should result in sustaining sales at MYPD 3 levels albeit at lower revenue levels.
- The sustained sales from implementing this package, rather than loss of sales due to potential plant closure, would also have the effect of moderating Eskom's RCA application for the final years of the MYPD 3..

4.8 Risk mitigation

- The customer will be liable for a minimum consumption payment based on 80% of normal consumption over each calendar quarter, provided that Eskom will adjust the required payment to account for substantiated significant events such as furnace ramp-ups, network outages, planned maintenance, furnace outages of a technical nature and industrial action.
- The customer will make available approximately 90% of the applicable load for the System Operator's (SO) demand response (i.e. interruptibility) for forty hours per month; available every day for maximum two hours, and no more than twice a day.
- Should unforeseen cost and/or price pressures result in the customer facing significant hardships, the customer shall have the right to approach Eskom to consider either a waiver of the minimum consumption provisions, an adjustment to the package price level, or both. Failing agreement by parties or failing Nersa approval, the customer shall have the right to give three months' notice in writing to cancel the interim agreement;

28 August 2017