

SSEG Options B and C: break-even and export options

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DRAFT for discussion · 2027/28 prices, excl. VAT, Eskom at 8.01%

PART A: OPTION B (RESIDENTIAL PEAK SUPPORT): BREAK-EVEN BY SYSTEM SIZE

Option B gives up the Option A basic charge (R821.17 a month, R9,854 a year). The time-of-use import rates recover R2,153, leaving R7,701 a year to be covered by peak support. Each kWh exported at the evening peak is worth about R2.69 to BCMM: R1.17 energy margin (Eskom energy, levies and losses avoided, less the R6.00 / R3.50 credit) plus R1.52 of Eskom demand and NMD charges avoided once enough customers take part.

Break-even: about 2,868 kWh a year exported at the peak, or about 11 kWh every weekday (2 hours × 5.5 kW), whatever the system size.

Committed at the peak	Each weekday	A year	Battery (2 h)	Basic charge	BCMM a year	Customer better off
3 kW	6 kWh	1,566 kWh	6 kWh	R300 a month	+R104	R7,153
5 kW	10 kWh	2,610 kWh	10 kWh	R0 a month	–R692	R12,787
8 kW	16 kWh	4,176 kWh	16 kWh	R0 a month	+R3,514	R15,839
10 kW	20 kWh	5,220 kWh	20 kWh	R0 a month	+R6,317	R17,873

- Below about 5.5 kW the customer must pay part of the basic charge (hence R300 at 3 kW). At 5 kW the R690 balance is covered by the margin on daytime exports (credited at R2.10 against an avoided R2.41). At 8 and 10 kW BCMM is clearly ahead.
- Without the demand value (if the pilot is too small to lower Eskom NMDs), each peak kWh is worth only R1.17 and break-even rises to about 6,584 kWh a year (about 25 kWh a weekday, or 12.6 kW for 2 hours). Option B is therefore a capped pilot tied to the NMD review.
- Contract term to consider: a minimum of 11 kWh per weekday in the Peak Support Agreement, whatever the system size.

PART B: OPTION C (BUSINESS AND INDUSTRY EXPORT PANEL)

1. The idea

Many businesses and factories have rooftop solar (and some have batteries) that produce more than they use, especially at weekends, over lunch and when production is down. Today they are held to a revenue-neutral SSEG tariff: exports are credited only up to what they consume, at R1.90/kWh. Option C would let approved larger generators export without that limit, on a standard contract, and be paid a formula price linked to BCMM's own Eskom cost, less 10%.

Each kWh they export is a kWh BCMM does not buy from Eskom. BCMM pays them less than it saves, so both sides gain, and the more they export at the times Eskom is expensive, the more both gain.

2. Who qualifies

- Business, industrial and institutional customers (Scales 2A, 3A, 3B, 4A, 4C and similar) with approved embedded generation, typically 100 kW and above. Residential customers stay on Options A and B.
- A smart bi-directional time-of-use meter, read remotely, at the customer's cost or through the RT29 programme.
- Registration with NERSA (Electricity Regulation Act, Schedule 2) and compliance with NRS 097-2 (low voltage) or the Grid Connection Code (medium voltage), approved through BCMM's SSEG process.
- Admission to the Option C panel and a signed Embedded Generation Export Agreement (SLA). Capacity is allocated feeder by feeder within the network's hosting capacity.

3. The tariff

Export credit (c/kWh) = 90% × BCMM's Eskom Municflex energy rate plus per-kWh levies (ancillary service and electrification subsidy) for the same season and time-of-use period. It moves automatically with Eskom's tariff every 1 July. Import charges stay on the customer's normal scale.

2027/28 indicative (c/kWh, excl. VAT)	Eskom energy + levies	BCMM avoided cost (incl. 8% losses)	Option C credit (Eskom less 10%)	BCMM keeps
High season (Jun–Aug): peak	785.9	848.7	707.3	141.5
High season (Jun–Aug): standard	219.7	237.3	197.7	39.5
High season (Jun–Aug): off-peak	156.8	169.4	141.1	28.2
Low season (Sep–May): peak	344.3	371.8	309.9	62.0
Low season (Sep–May): standard	207.1	223.7	186.4	37.3
Low season (Sep–May): off-peak	156.8	169.4	141.1	28.2

Basis: Eskom Municflex 2025/26 at BCMM's main intakes (Woodbrook, Stafford, Mdantsane, Kemba), escalated by 9.01% (2026/27) and 8.01% (2027/28, proposed). Upstream loss factor 1.08. Final rates to be set in the 2027/28 tariff book.

- BCMM keeps about 16.7% of every kWh it avoids: the 10% discount plus the losses it no longer buys. This pays for the network, metering, settlement and risk.
- Peak (the weekday morning and evening peaks in Eskom's time-of-use schedule): R7.07/kWh in high season and R3.10 in low season. This rewards customers with batteries who export in the evening peak.
- Standard (weekday daytime, Saturday morning): about R1.86–R1.98/kWh. This is where most solar exports fall, close to today's R1.90, but without the cap.
- Off-peak (nights, Sundays, most of Saturday): R1.41/kWh. Below today's R1.90, because BCMM's off-peak Eskom cost (R1.69 including losses) is lower than the R1.90 it pays now. Option C removes that loss to BCMM.
- Optional: a firm peak commitment (as in Option B) can earn an extra demand credit, but only once enough firm capacity lets BCMM lower its Eskom notified maximum demand. Solar alone does not reduce the evening peak.

3A. Flat-rate options C1, C2 and C3

Any kWh BCMM buys below its Eskom cost at that time saves money, so BCMM can buy at all three times of day. For simpler billing on SOLAR, the customer may instead choose one flat export credit, priced on a contracted export profile (high season 25%, low season 75% of the year):

Option	Export profile (peak / standard / off-peak)	Flat credit (R/kWh)	BCMM avoided cost (R/kWh)	BCMM keeps (R/kWh)
C1 Solar (mostly standard)	5% / 70% / 25%	1.882	2.259	0.376
C2 Battery (mostly peak)	60% / 30% / 10%	3.164	3.797	0.633
C3 Balanced (equal)	33% / 33% / 33%	2.465	2.958	0.493

What it means for a customer (net of the R1,000 a month export administration charge at 400 V):

Exported a year	C1 solar: customer / BCMM	C2 battery: customer / BCMM	C3 balanced: customer / BCMM
100,000 kWh	R176,218 / R49,644	R304,418 / R75,284	R234,532 / R61,306
500,000 kWh	R929,089 / R200,218	R1,570,091 / R328,418	R1,220,658 / R258,532
1,000,000 kWh	R1,870,178 / R388,436	R3,152,183 / R644,837	R2,453,317 / R505,063

- C1 suits solar-only factories: about R1.88/kWh, the same level as today's R1.90 but with no cap.
- C2 suits customers with batteries who shift exports into the peak: about R3.16/kWh.
- C3 suits mixed solar and storage: about R2.47/kWh.
- Profile safeguard: C2 requires at least 50% of monthly exports in peak, C3 at least 25% in each period. A month that does not meet its profile is credited at the C1 rate, or at the off-peak rate (R1.41) if more than 40% of exports were off-peak, so BCMM never pays more than it saves.
- Basic charge: these customers already pay the basic and demand charges of their import scale. Option C adds an export administration and metering charge of R1,000 a month (400 V) or R1,500 a month (11 kV) to cover metering, settlement and the agreement.

4. What it is worth: example of 200 customers

Assumption / result	Value
Customers on the panel	200
Average solar system	200 kWp (40 MWp in total)
Annual generation (1,600 kWh per kWp)	64.0 GWh
Share exported (weekends, lunch, idle time)	30%: 19.2 GWh
Time of export: standard / off-peak / peak	70% / 25% / 5%
Paid to customers under Option C	R36.1 million a year (average R1.88/kWh)
Eskom cost BCMM avoids (incl. losses)	R43.4 million a year
Net benefit to BCMM	R7.2 million a year
Per factory: income / BCMM benefit	about R181k / R36k a year

19.2 GWh is about 1.4% of BCMM's annual Eskom purchases. The benefit grows with peak exports from batteries: every 1 GWh moved from standard to high-season peak adds about R1.0 million to BCMM and R5.1 million to the customers.

5. How it compares

	Option A (default)	Option B (peak support)	Option C (export panel)
Customers	Residential SSEG	Residential with batteries	Business and industry, about 100 kW+
Exports	Net billing, revenue-neutral	Committed 3–5 kW+ at evening peak	Unlimited, within hosting capacity
Export price	R1.90 (R3.00 high-season peak)	R1.90 to R6.00 by TOU	Eskom energy + levies less 10%, by TOU
Credit above the bill	No	No	Yes: paid out monthly or quarterly
Contract	Standard SSEG approval	Peak Support Agreement	Export Agreement (SLA), panel

6. The Export Agreement (SLA): key terms

- Term of three years, renewable, to stay within MFMA section 33 (longer terms need the section 33 process and Council approval).
- Export capacity (kVA) approved for the connection point; BCMM may curtail exports for network safety, outages or reverse power flow, without compensation for short curtailments.
- Metering: smart TOU bi-directional meter, read remotely; BCMM's readings are final.
- Settlement: export credits set off against the customer's electricity and municipal account each month; any surplus paid out quarterly against a valid tax invoice (VAT-registered generators charge VAT).
- Price: the tariff-book formula, adjusted every 1 July; no guaranteed price.
- Customer obligations: maintenance, protection settings, anti-islanding, insurance, access for inspection; immediate disconnection for unsafe operation or tampering.
- Export administration and metering charge of R1,000 a month (400 V) or R1,500 a month (11 kV).
- Exit: either party on three months' notice; the customer then returns to the standard SSEG terms.

7. Regulatory and MFMA steps

1. Tariff: include Option C (the formula and the 2027/28 rates) in the 2027/28 tariff application to NERSA. Under section 15 of the Electricity Regulation Act, no tariff may be charged or paid unless NERSA has approved it.
2. Procurement: run the panel as a Council-approved standing offer open to all qualifying generators, through the Supply Chain Management Policy, so that every purchase is on the same published terms. Confirm the approach with Legal and SCM.
3. Budget: provide for feed-in purchases as "other energy purchases" in the electricity trading account. They are funded by the Eskom saving, which should be shown in the same budget.
4. Council: approve the Option C policy, the standard Export Agreement and the delegations to sign it.
5. Eskom: confirm that BCMM's NMD and Municflex billing are unaffected, and that no export flows back into Eskom's network at any intake.

8. Risks and safeguards

- Reverse power flow: at Sunday midday BCMM's load is lowest and solar highest. Total Option C export capacity at each intake must stay below the minimum daytime load at that intake, or energy would flow back to Eskom unpaid. Check against SCADA and Eskom metering before admitting capacity.
- Network hosting capacity: assess each feeder (voltage rise, protection, fault levels) before approval.
- Cash flow: payments to generators are cash out, while the Eskom saving shows up a month later. Set off against the customer's account first.
- Revenue: a customer that exports more may also import less. Option C prices only the exports; import tariffs and basic and demand charges continue to recover the network costs.
- Off-peak price: R1.41 is below today's R1.90. Explain it clearly, or keep R1.90 for small systems on Options A and B.

9. Next steps

6. Get the SSEG register and smart meter data for business customers with solar, to size the real export potential.
7. Get minimum daytime load at each intake (SCADA), to set the hosting cap per intake.
8. Confirm the approach with Legal, SCM and Finance; draft the Export Agreement.
9. Model Option C in the COS study; Scale SSEG-C has been added to the 2027/28 tariff book (draft v0.5) for the NERSA application.
10. Start as a pilot capped at, for example, 10 MW, and review after the first high season.

APPENDIX: CALCULATION OF THE OPTION C EXPORT CREDITS

Step 1. Eskom cost per kWh by season and time of use (2025/26)

Source: Eskom Municflex 2025/26 rates loaded in BCMM's COS model (sheet "Eskom Tariff Inputs (Year 1)") for the main intakes above 66 kV (Woodbrook, Stafford, Mdantsane, Kemba), which carry about 75% of BCMM's purchases. Per-kWh levies: ancillary service charge 0.37 c/kWh and electrification and rural subsidy 25.95 c/kWh, total 26.32 c/kWh. Network, NMD and service charges are fixed (R/kVA or R/day) and do not fall when a customer exports, so they are excluded.

Season and period	Active energy (c/kWh)	Levies (c/kWh)	Eskom 2025/26 (c/kWh)	× 1.0901 (2026/27)	× 1.0801 (2027/28)
High season, peak	641.14	26.32	667.46	727.60	785.88
High season, standard	160.29	26.32	186.61	203.42	219.72
High season, off-peak	106.86	26.32	133.18	145.18	156.81
Low season, peak	266.09	26.32	292.41	318.76	344.29
Low season, standard	149.60	26.32	175.92	191.77	207.13
Low season, off-peak	106.86	26.32	133.18	145.18	156.81

Escalation: NERSA-approved municipal increase of 9.01% from 1 July 2026, and Eskom's proposed 8.01% from 1 July 2027 (to be updated when NERSA decides).

Step 2. Export credit and BCMM benefit (2027/28)

Export credit = Eskom cost × 90%. BCMM avoided cost = Eskom cost × 1.08, because a kWh exported inside the network also saves the upstream losses on the energy BCMM would otherwise have bought. BCMM keeps = avoided cost – credit = Eskom cost × 0.18, which is 16.7% of the avoided cost.

Season and period	Eskom 2027/28 (c/kWh)	Credit × 0.90 (c/kWh)	Avoided × 1.08 (c/kWh)	BCMM keeps (c/kWh)	Tariff (R/kWh)
High season, peak	785.88	707.29	848.75	141.46	–7.073
High season, standard	219.72	197.75	237.30	39.55	–1.977
High season, off-peak	156.81	141.13	169.35	28.23	–1.411
Low season, peak	344.29	309.86	371.83	61.97	–3.099
Low season, standard	207.13	186.42	223.70	37.28	–1.864
Low season, off-peak	156.81	141.13	169.35	28.23	–1.411

Step 3. Flat credits for C1, C2 and C3

Flat credit = Σ (season share × period share × C-TOU credit). Season shares are 25% high season (June to August, 3 months) and 75% low season (9 months).

C1 Solar (mostly standard): $0.25 \times 0.05 \times 707.3 + 0.25 \times 0.70 \times 197.7 + 0.25 \times 0.25 \times 141.1 + 0.75 \times 0.05 \times 309.9 + 0.75 \times 0.70 \times 186.4 + 0.75 \times 0.25 \times 141.1 = 188.2$ c/kWh, i.e. R1.882/kWh (BCMM keeps 37.6 c/kWh).

C2 Battery (mostly peak): $0.25 \times 0.60 \times 707.3 + 0.25 \times 0.30 \times 197.7 + 0.25 \times 0.10 \times 141.1 + 0.75 \times 0.60 \times 309.9 + 0.75 \times 0.30 \times 186.4 + 0.75 \times 0.10 \times 141.1 = 316.4$ c/kWh, i.e. R3.164/kWh (BCMM keeps 63.3 c/kWh).

C3 Balanced (equal): $0.25 \times 0.33 \times 707.3 + 0.25 \times 0.33 \times 197.7 + 0.25 \times 0.33 \times 141.1 + 0.75 \times 0.33 \times 309.9 + 0.75 \times 0.33 \times 186.4 + 0.75 \times 0.33 \times 141.1 = 246.5$ c/kWh, i.e. R2.465/kWh (BCMM keeps 49.3 c/kWh).

Step 4. Export administration and metering charge

R1,000 a month at 400 V and R1,500 a month at 11 kV, the same settlement charges proposed for wheeling customers (COS report, Annexure H). They cover the smart TOU meter reading, monthly settlement and payment, and administration of the Export Agreement, and are to be confirmed by Finance against actual costs.

Step 5. Condition: buyback agreement (MFMA)

Option C credits are payable only where BCMM has concluded a buyback (energy purchase) agreement with the generator, in the standard form approved by Council, through the Supply Chain Management Policy and in compliance with the MFMA (including section 33 where an agreement imposes financial obligations beyond three financial years). The tariff (formula and rates) must be approved by NERSA under section 15 of the Electricity Regulation Act before any credit is paid.