

What the City allows and will allow (C&I)

Currently:

Grid connection with reverse power flow:

- Must have AMI bi-directional meter,
- must be on tariff with daily service charge,
- no payment will be made for reverse power flow.

In Future

- As above, but will be compensated for reverse power

Note: Size of generation will be limited at time of application so that consumers remain average “net consumers” over 12 months.

What the City allows and will allow (Residential)

Currently:

- Reverse power flow with decrementing prepayment meter, must be on non-lifeline domestic tariff

In Future

- Reverse power flow, with decrementing prepayment meter, no tariff change required

OR

- on SSEG tariff - SSEG at City's discretion, with bi-directional meter

Note: Size of generation will be limited at time of application so that consumers remain average “net consumers” over 12 months.

Generation Size Limitations

Residential

(no grid studies required ito NRS 097-2-3)

1	2	3	4
Number of Phases	Service Circuit Breaker Size (A)	Notified Maximum Demand (kVA)	Maximum Individual Generation Capacity (kVA)
1	40	9.2	2.3
1	60	13.9	3.5
1	80	18.5	4.6
3	40	27.7	6.9
3	60	41.6	10.4
3	80	55.4	13.9
3	100	69.3	17.3

Commercial & Industrial

- < 1 MVA
(will depend on grid capacity, consumer load & generation size in grid context in compliance with proposed NRS 097-2-3)

Metering Solutions

Need separate measurements of imported and exported energy-excludes “in meter off-setting” e.g. Electro-mechanical meters running backward (also not accurate).

Commercial and Industrial

- Bi-directional AMI credit meters (off the shelf)

Residential (Current options- not finalised.)

A Prepayment meter (PPM) which decrements on forwards AND reverse power flow, or either

- Single phase and three phase- Bi-directional AMI credit meters
- or
- Bi-directional PPM - with facility to remotely read generation register (“semi-developed”)

Note: IRP revision might affect metering choice.

“Down the road” Residential Metering Solution ??

- Smart meter which can operate in prepaid and post paid modes
- Can accommodate Time of use tariffs
- Local keyboard for coupon loading of units if communication line is down.
- Main barriers-
 - open communication protocol to prevent one supplier getting a monopoly,
 - cost of replacing all meters and installing a communication infrastructure
 - security (hack proof)

VAT

- VAT- Consumers do not have to issue the City a VAT invoice for payment for excess generation.
- Vat on payments for excess generation only payable to registered VAT vendors (excludes most residential customers)

Generation licences

- Electricity Regulation Act : all generators to have a generation licence from NERSA unless generation is “for own use.”
- “Own use” not defined: If someone exports at times onto the grid, but their net power flow is consumptive- are they generating “for own use”?
- NERSA Guidelines for generation less than 100kW imply that a licence is not required. However they are ONLY GUIDELINES. They cannot override the Act
- The City will allow grid connection up to 1 MW without evidence of a generation licence.
- >1 MW: City will require consumer to have a generation licence before processing application
- The City will report all embedded generation to NERSA.
- Consumer is responsible to NERSA- and takes risk if NERSA requires, and then refuses, to issue generation licence

Technical Specifications

- Low voltage: NRS 097-2-1:2010 Utility interface (being revised)
- Medium voltage: Eskom specification DST 34-1765 (will be superseded by NRS 097-1 when finalised)
- Grid code for renewable electricity (grid code will override other specifications where there are clashes)

Outstanding:

- NRS 097-1 (for MV grid connection)
- NRS 097-2-2 (2014 edition in particular type-testing requirements)
In the interim inverters must be type-tested by an accredited test house.
- NRS 097-2-3 (2014 edition for simplified utility connection criteria-imminent)
- NRS 097-2-4 (implementation procedures and application – future development)

Consumers connecting now will need to prove compliance with new standards as they emerge.

Technical Specifications cont'd

SANS 10142-1

- Compulsory specification SANS 10142-1 does not cover dc circuits but does cover connection of generators to the grid.
- SANS 10142-3 is being drafted and will cover the dc requirements. In the interim the City will require a professional engineer and a COC sign-off of all SSEG's.

Business Processes

Business Processes being implemented to :

- Integrate with other supply applications processes
- Initiate Grid capacity studies when required
- Track and record design, testing and handover approvals and Supply Agreements
- Handle reading dual meter registers and manage billing
- Provide data for NERSA reporting etc.
- Provide consumer advice

Application Process

- Consumer guidelines are being drafted and are 90% complete (In the interim, the City provides a summary document with its requirements)
- Consumer must complete and submit an application form
- Consumer must sign a special supply connection agreement
- Grid studies may be required for C&I applications.
- Customer pays for all related costs (network studies, metering and network changes, tests ...)
- No grid approval without prior approval of installation by other City departments

Site Acceptance

Acceptance

- Installation compliance with all requirements to be signed off by a professional engineer/technologist
- Certificate of Compliance required
- Inverters set in accordance with NRS 097-2-1