

EKURHULENI EXPERIENCE WITH EMBEDDED OR DISTRIBUTED GENERATION

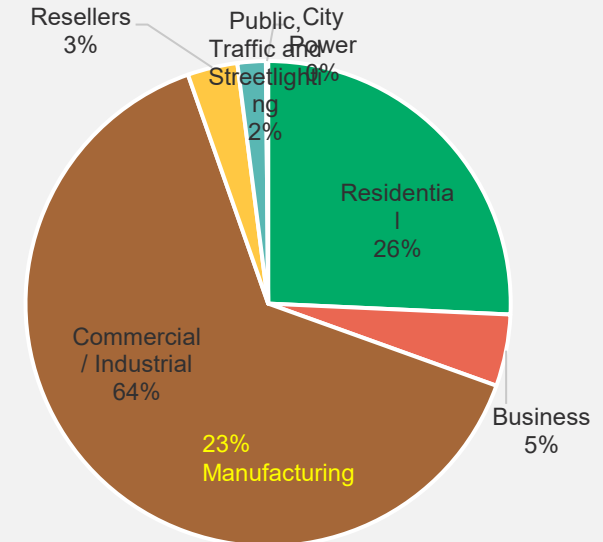
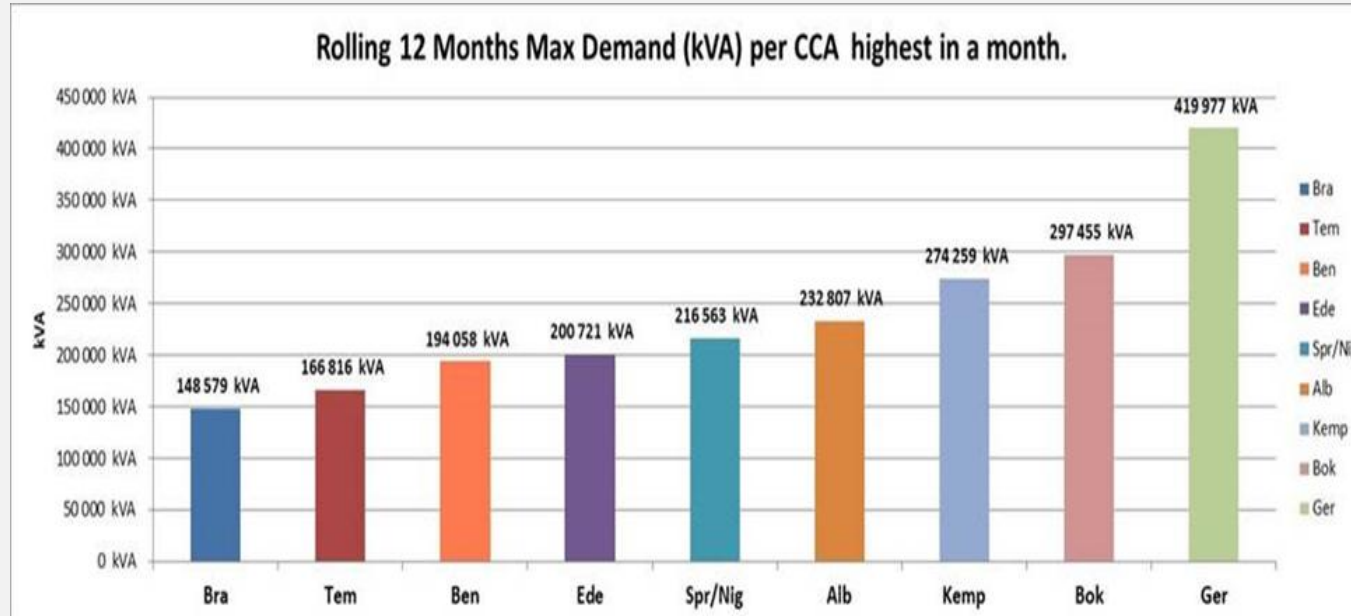
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22 June 2026



**City of
Ekurhuleni**

Background

- CoE is a category A Municipality
- One of the country's largest Metros, as well as one of the largest electricity distributors.



- CoE is reliant on Eskom for power requirements with a total of 2500MVA demand (7% contribution to SA demand) from 56 Eskom intake points.
- City currently have 6MW of own generation from solar PV and Biogas
- The city approved an Energy and Climate Change Strategy and one of the objectives is to transition to low carbon operations with a target of 40% renewable/clean energy by 2030

Development of COE DG Framework

- ❖ Started in 2013, mainly influenced by industrial customers
- ❖ Continuous development over the years
- ❖ The framework include:
 - (a) EG approved policy – detailing guidelines for installation, approval process, commissioning, metering etc. Policy updated yearly
 - (b) By-laws update to enforce the EG policy
 - (c) Assessment SOP for the staff
 - (d) Grid impact study guidelines for systems above 1MW - SEA
 - (e) Embedded generation feed in tariffs
 - (f) Metering and Billing – Bidirectional meters and prepaid meters only, NO electro-mechanical meters
 - Bidirectional meter – Preferred
 - Prepaid Meter – Customers must install reverse power flow blocking devices to prevent feedback to the grid
 - (g) Embedded generation recording template – to record all approved systems, NERSA and other stakeholder's reporting

COE Approval Process

SSEG below 1MW:

- ❖ Applications are either emailed, hand delivered or online.
- ❖ CoE uses simplified connection criteria, NRS097-2-3 to assess low voltage SSEGs for connection up to 1MW
- ❖ Customers can install an SSEG of equal size to the UIC/NMD, but export is limited 25% (Shared) & 75% (Dedicated feeder)
- ❖ Customers UIC can be retrieved from the metering on line system or billing system, servicemen
- ❖ First approval letter issued if all in order for construction to begin
- ❖ After construction, CoE requires completed commissioning form, CoC, Inverter NRS097-2-1 certificate, pictures of safety labelling. Due to volume, it is impossible to attend each SSEG commissioning
- ❖ Final approval letter is issued if all commissioning documents are in order.

EG above 1MW:

- ❖ CoE generally requires applicants to conduct grid impact studies for connections above 1MW before approval
- ❖ Working on a process to conduct the studies internally.
- ❖ Studies may include, load flow under different generation and loading scenarios, short circuit studies, rapid voltage changes, export capacity etc
- ❖ Grid code compliance - power factor requirements, reactive power control, frequency requirements

Ways COE is Accelerating Approvals

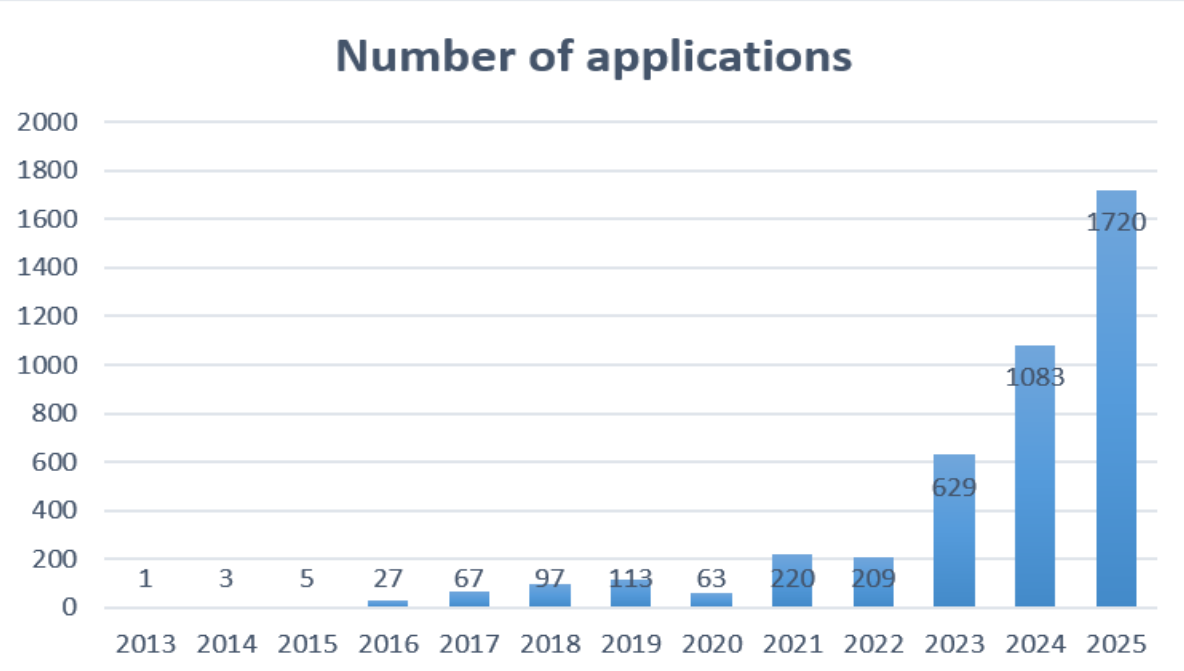
- ❖ Appointment of students doing in-service training or other Municipal training programmes
- ❖ Digitisation of the application process
- ❖ Striving to issue approvals between 1- 60 days.

Grid Penetration of DG in COE

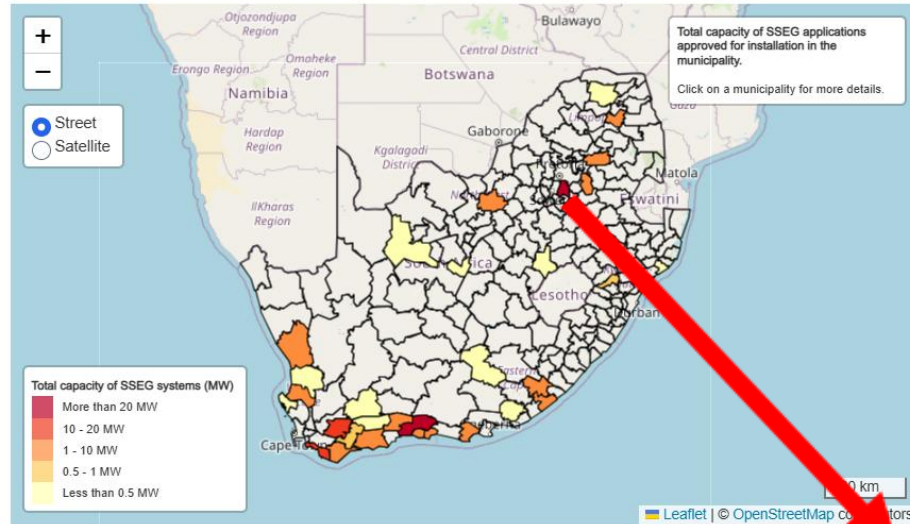
- ❖ **347.85 MW** approved installed capacity of embedded generators
- ❖ 90% of applications received are from industrial and commercial customers
- ❖ 45MW estimated unregistered systems
- ❖ Approval takes between 5 - 60 days for applications below 1MW
- ❖ **Solar feed in tariffs and online option seems to be attracting more residential registrations**

Summary:

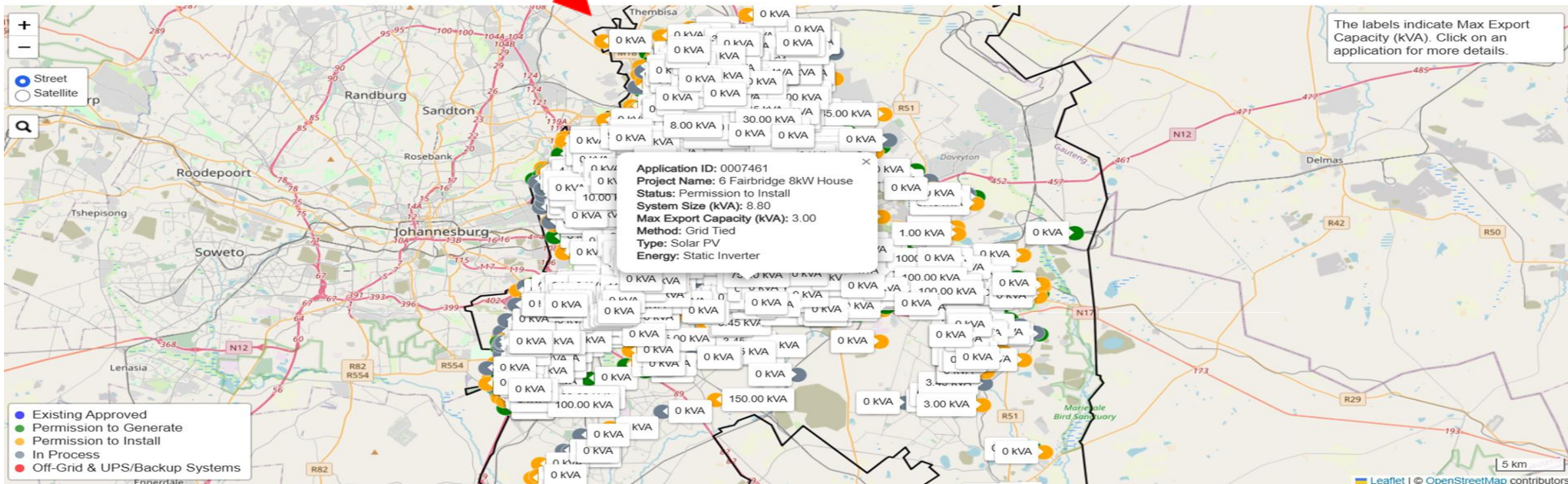
Year	Number of applications	Installed Capacity (KW)
2013	1	350
2014	3	580
2015	5	1511
2016	27	7481
2017	67	6450
2018	97	18524
2019	113	16072
2020	63	18501
2021	220	49227
2022	209	43855
2023	629	105067
2024	1083	19782
2025	1720	60450
Total	4237	347850



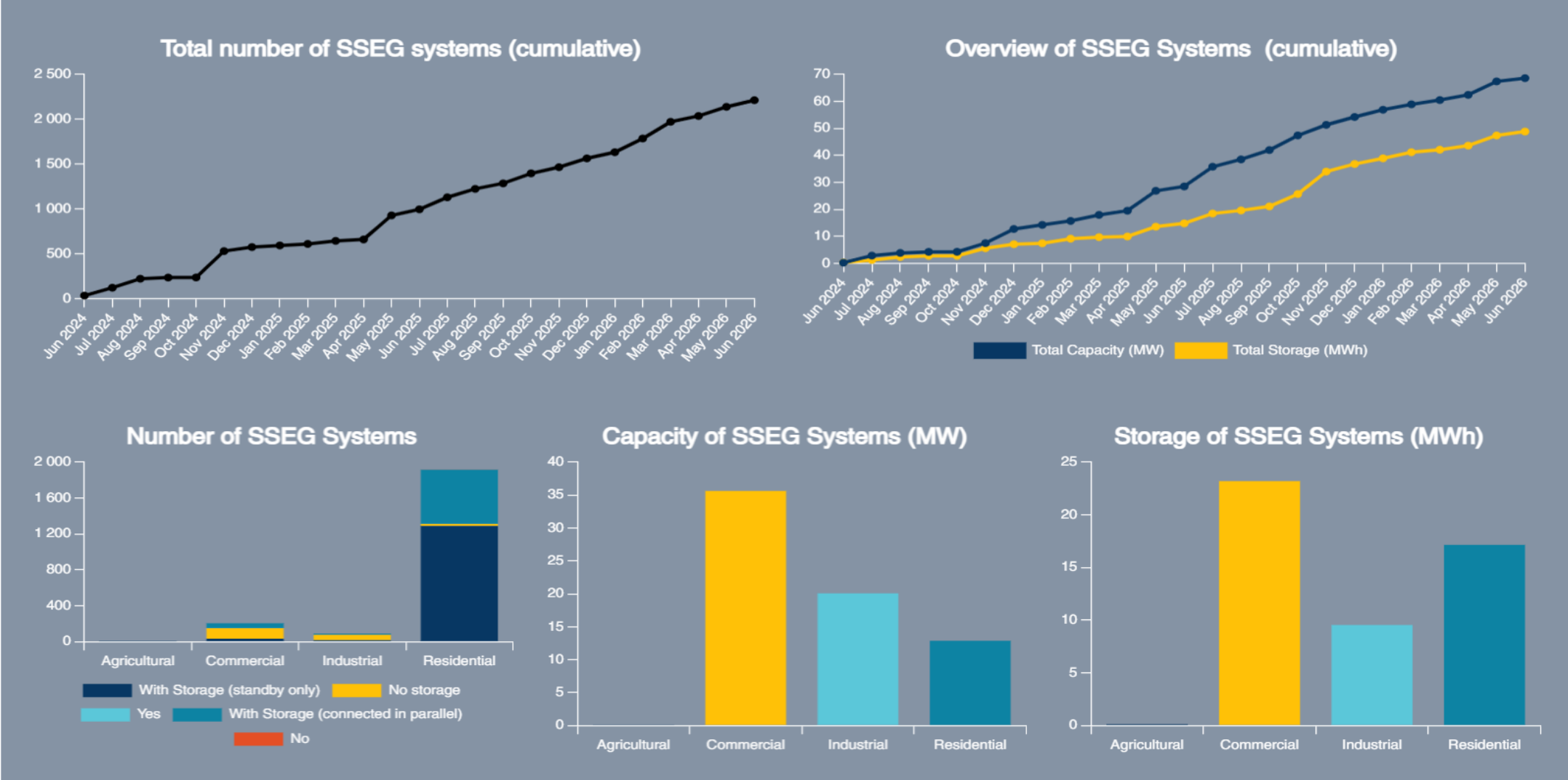
Digitisation of DG application process



- 68,05 MW processed to date, June 2026
- First application: May 2024
- Valuable data collected and stored
- Improved customer interaction and satisfaction
- Quicker turnaround time
- Makes reporting easy



Enhanced Visibility and Reporting



Implications of not having an DG process in place

- ❖ Legislative requirement
- ❖ Unregistered systems are a safety hazard to Municipal service man
- ❖ Unregistered and illegal systems can potentially impact the functioning of The Municipal grid – compromises quality of supply
- ❖ Billing errors from customers with electro-mechanical meters
- ❖ Nuisance callout from customers with prepaid meters tripping or deducting units during export period

Examples of DG processed

Natural Gas:



Solar:



Landfill gas:



City owned Solar DG

- Installation of solar rooftop

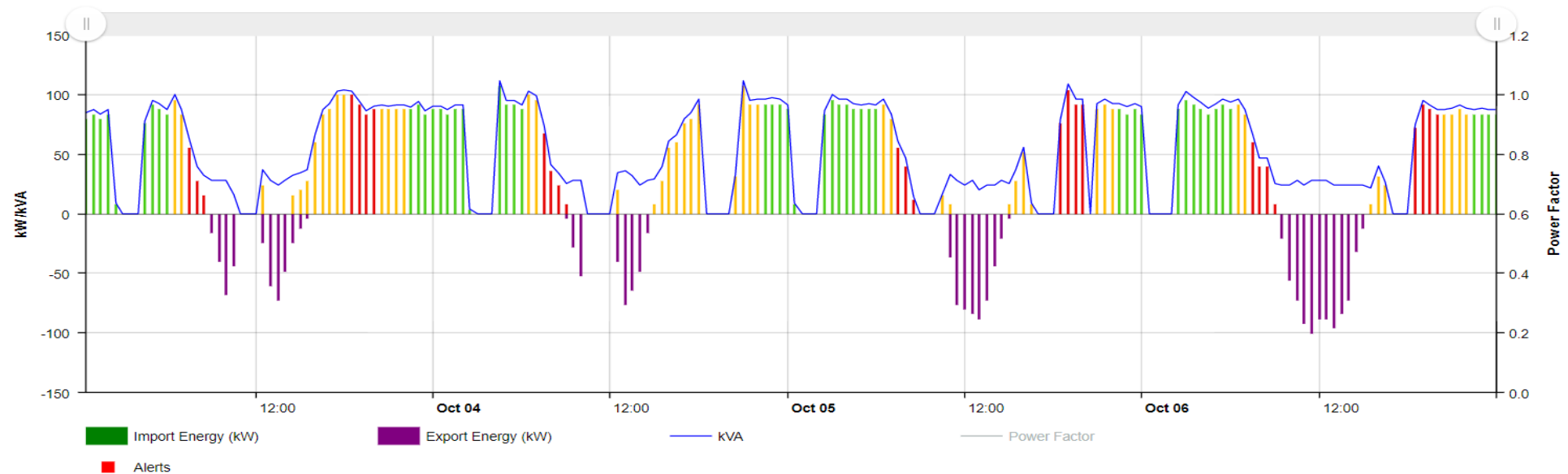
Area/Name	Rated capacity (Kw)	Type
Alberton CCC	500 kw	Solar rooftop
Thembisa CCC	250kw	Solar rooftop
Boksburg CCC	250 kw	Solar rooftop
Brakpan CCC	250 kw	Solar rooftop
Kempton Park CCC	750 kw	Solar rooftop
Bunny Park	100 kw	Ground Mounted solar
OR Tambo Precint	200 kw	Ground Mounted solar
Nigel CCC	250 Kw	Solar rooftop
Alberton Swartkoppies Municipal Complex	250 kw	Solar rooftop
Springs CCC	250 kw	Solar rooftop



Solar Rooftops on Council Buildings

- Kempton park 750kW exporting plant and 70% reduction in grid power

ACCOUNT NAME:	EKURHULENI MM	METER SERIAL NUMBER(S):	14263321
ACCOUNT #:	1700155850	STAND NUMBER:	kempton_int_01
LOT NUMBER:	R330000000000330001400000000	REGION:	KEM
TARIFF:	E3XX EKURHULENI_TARIFF E_TOU_>230/400V & <=11kV_EXPORT ENERGY ; Ekurhuleni		



Solar Rooftops on Council Buildings

CIVIC CENTRE	Usage prior to solar installation (kWh)	Usage post solar installation (kWh)	Monthly Savings (kWh)	Monthly Savings (R) VAT exclusive	Remarks
Kempton Park	306 175	89 951	225 128	425 717.05	These are actual consumption figures recorded by the billing meter. The installation of a solar system resulted in 71% reduction in electricity taken from the grid. Repairs on Plant Complete. Plant Operating close to Maximum Capacity with 8 904kWh excess electricity exported to the Grid per month
Alberton	289 737	149 832	139 905	264 560.36	These are actual consumption figures recorded by the billing meter. The installation of a solar system resulted in 48% reduction in electricity taken from the grid
Boksburg	350 312	162 995	187 317	354 216.45	These are actual consumption figures recorded by the billing meter. The installation of a solar system resulted in 53% reduction in electricity taken from the grid
Springs	188 636	82 929	105 707	199 891.94	These are actual consumption figures recorded by the billing meter. The installation of a solar system resulted in 56% reduction in electricity taken from the grid.
Thembisa	The other area's PV systems savings and performance will be estimated based on the above actual figures since some of the billing meters were not functional at the time of the report. The areas are Thembisa (Vandalised during recent protest), Brakpan, Nigel (New installation), and Alberton Swartkoppies (New installation).				
Brakpan					
Nigel					
TOTAL SAVINGS (per month)	R2 352 603.00				2-3 years payback period

COE Biogas DG

- ❖ City has installed a 1MW biogas generator to harvest methane gas and generate electricity at Simmer & Jack landfill site



Challenges

- Lack of capacity to process DG applications and policing of unregistered DGs – students appointed on temporary basis, meter inspectors to identify unregistered systems
- No statistics meters on some distribution substations – Needed for grid studies
- Not currently able to conduct grid impact studies internally.

Embedded Generation by IPP

- ❖ Experience gained on processing customers EG enabled COE to process utility scale generation by IPPs

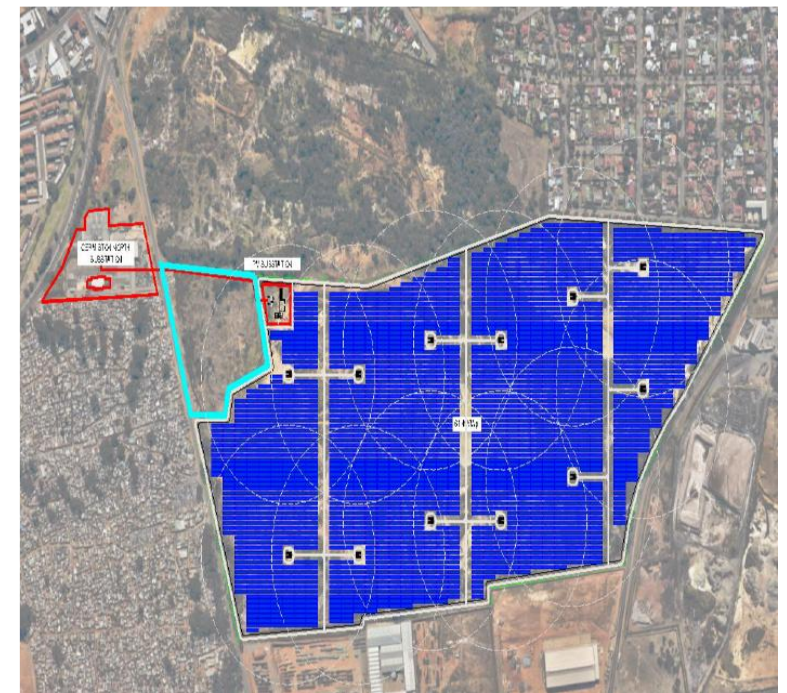
90MW Zestfontein project: Bredell & Benoni



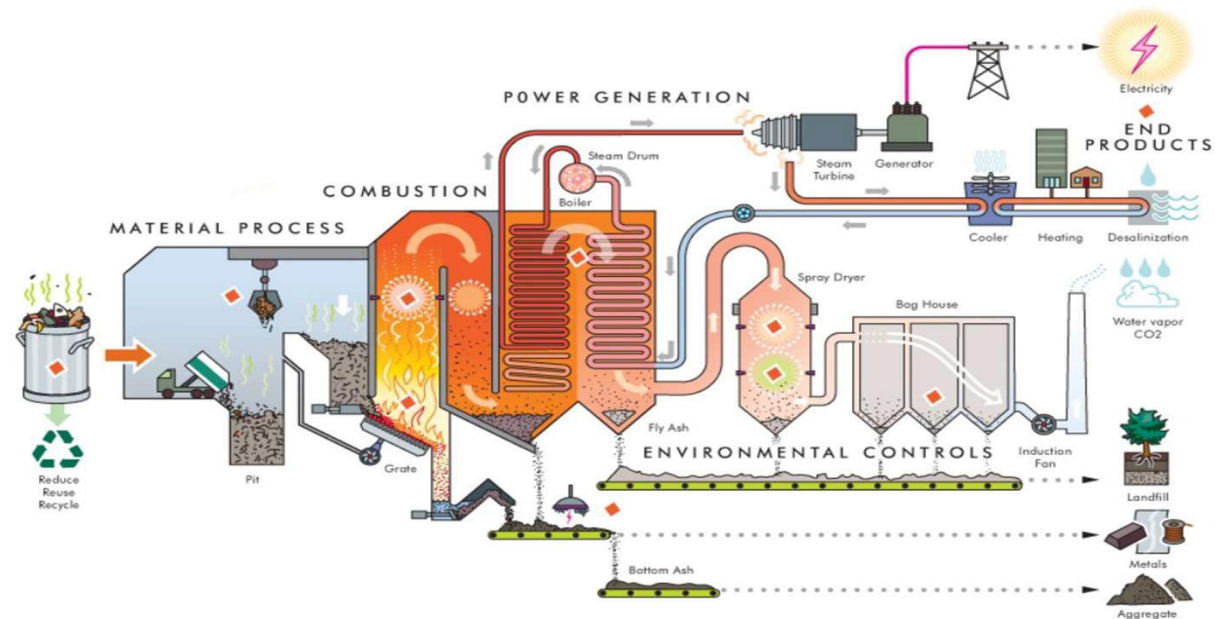
30MW: Brakpan & Benoni: Solar



50MW: Germiston North: Solar



Waste to Energy Projects:



IPP Gas projects

Natural Gas:

27 MW Gas plant at Springs, 1 MW solar & 1 MW Hydrogen (Hybrid plant)

Gas Generator

NOTICE OF ENVIRONMENTAL AUTHORISATION (EA) PROCESS FOR THE PROPOSED HYBRID ELECTRICITY GENERATION PLANT, LOCATED IN THE SPRINGS SPECIAL ECONOMIC ZONE (SEZ), SPRINGS, GAUTENG PROVINCE

Project Applicant: IBS Crafts (Pty) Ltd

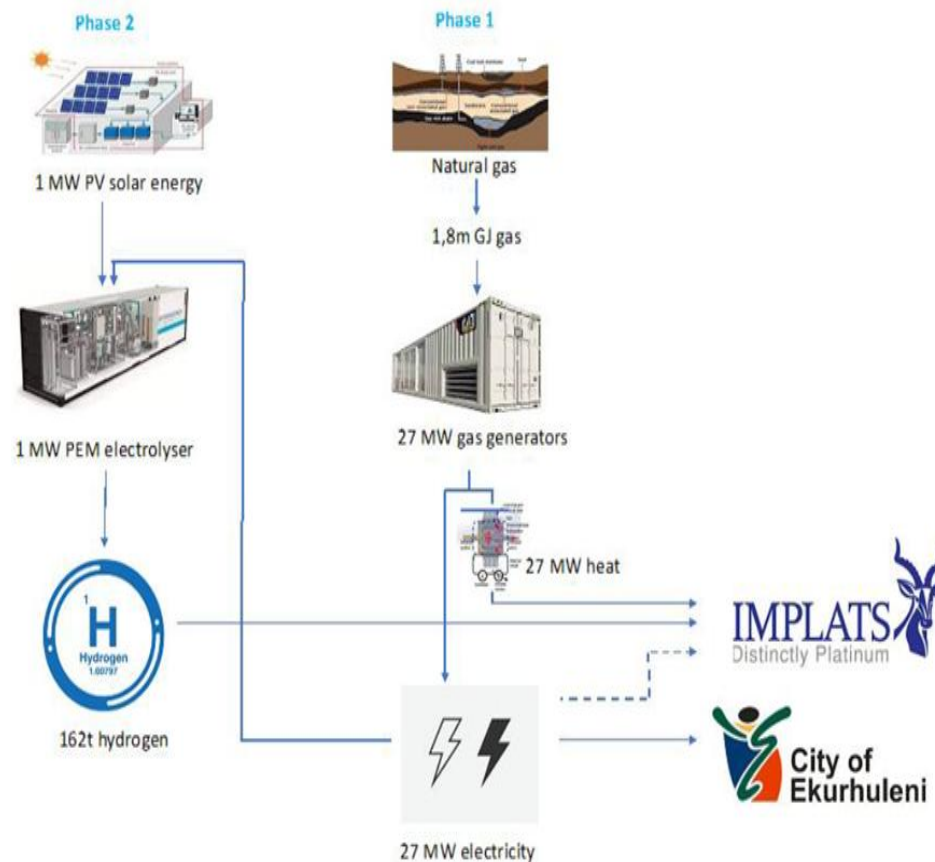
Proposed Activity: IBS Crafts (Pty) Ltd aims to develop a Hybrid Electricity Generation Plant comprising of 27 MW of natural gas supplemented by 3 MW of solar power. The electricity plant will be located in the Impala Platinum IDZ, Springs, Gauteng Province.

Project Location: The proposed project is located on Plot 2 and a portion of Plot 3 of Farm Geduld 123 IR in the Impala Platinum IDZ in Springs within the City of Ekurhuleni Metropolitan Municipality, Gauteng province. The site covers an aerial extent of approximately 2 hectares. Central site coordinates are: 26°13'8.74"S, 28°26'29.34"E.

Environmental Impact Assessment Process: The proposed development requires an Environmental Authorisation (EA) as it triggers a listed activity (see table below) in accordance with the NEMA (Act 107 of 1998) EIA Regulations 2014, as amended. Green Gold Group has been appointed as an independent Environmental Assessment Practitioner (EAP) to conduct and facilitate the EA. The project is on phase 1 which is the Scoping Phase. The application will be submitted to the competent authority in accordance to Regulation 21 to 24 of the EIA Regulations of 2014, as amended.

GOVERNMENT NOTICE	DESCRIPTION
GNR 325 of April 2017, Listing Notice 2, Activity 2	The development and related operation of facilities or infrastructure for the generation of electricity from a non-renewable resource where the electricity output is 20 megawatts or more.

Registration of Interested and Affected Parties (I&APs): As part of the application process, the public and all I&APs are invited to participate in the Public Participation Process (PPP) by registering on our database. To register on the project database, raise any concerns or interest with regards to the proposed development, kindly contact Ms Lebohlang Moiloa of Green Gold Group in writing on or before 01 July 2024 at P.O. Box 65384, Erasmusrand, 0165, Pretoria or Email: EIAs@greengoldgroup.co.za Should you seek clarity with regards to the project, please contact 012 844 0248. As a registered I&AP, you will be informed of all updates regarding the proposed project including the availability of reports for commenting and the decision to grant or refuse an EA to be made by the Competent Authority.



Thank you

