AMEU/SAIEE joint virtual webinar

"THE DIGITAL MUNICIPAL Dx ELECTRICTY UTILITY OF THE FUTURE"

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Session 5 (Case Study)

Effective DER Procurement Systems & Processes: City of Ekurhuleni

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SAIEE

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Implementation Options

1. **Procurement directly from IPPs**
2. **Wheeling**
3. **Own built programme**
4. **Purchase of excess energy exported to the grid from embedded generators for own use**

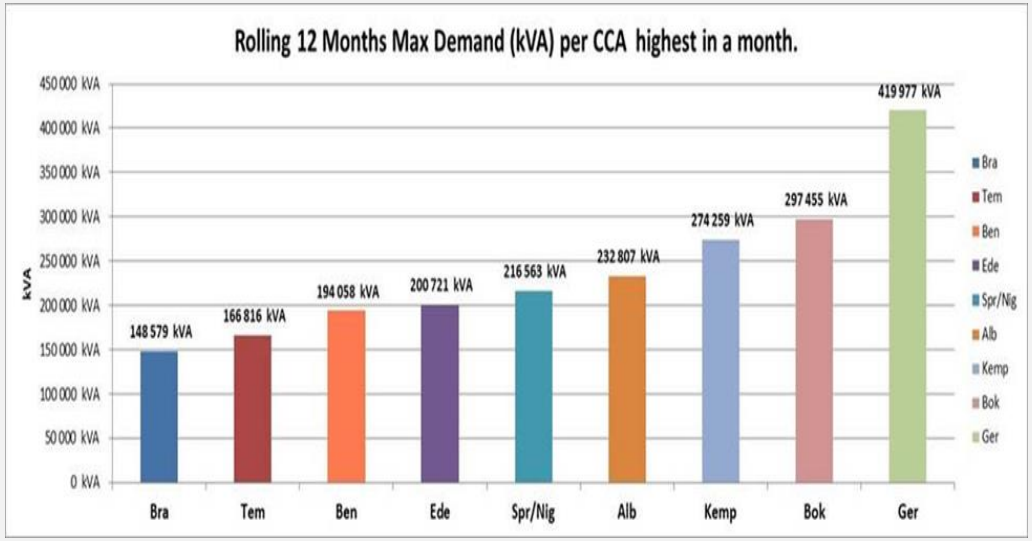
Why are we doing this

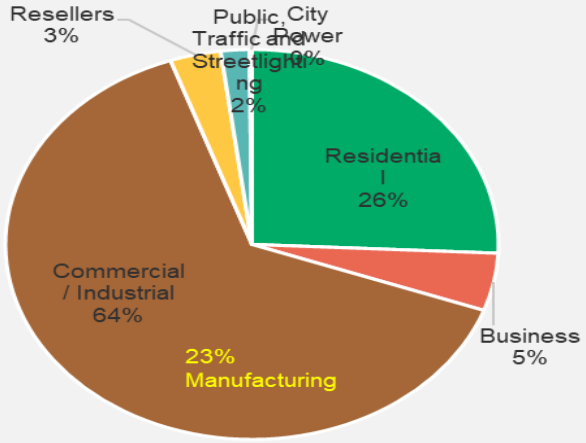
What are the problems we hope to solve

- No utility scale generation plant in CoE
- Unreliable supply – load shedding is a threat to energy security (***De-load Eskom***)
- Rising Eskom electricity prices – Buffer customers against rising cost of electricity
- Lack of job opportunities – to stimulate economic growth
- High level of GHG emission – contribute towards lowering carbon footprint and meet CoE energy and climate change targets(30% renewable energy by 2030)

About CoE

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





- CoE has no power stations and reliant on Eskom for power requirements with a total of 2500MVA demand (7% contribution to SA demand)
- The city approved an Energy and Climate Change Strategy and one of the objectives is to diversify energy supply to include renewable and cleaner energy sources with a target of 10% by 2020 and 30% by 2030

IPP Programme Implementation

- 47 IPPs appointed through an RFP process
- Eskom Megaflex tariff plus discount for 17 years
- Accepted only embedded IPPs (no wheeling), capacity 5MW and above
- **MFMA section 33** process conducted and completed (NT views & Recom),(Council resolution) – ***Long term contracts***
- **Section 34 of ERA** on new generation regulations applied for - ***concurrence stage >schedule 2> NT Circular 118 = licensing exemption for plants <100MW***
- 20 years PPA
- 90% PPA signature rate
- First generations units within 12 months

Renewable/Clean technologies considered

Technology	Number of service providers	Range (MW)	Total Proposed Capacity (MW)
Solar PV	31	5 -10	298
Waste to Energy	6	5 - 33	139
Landfill Gas	1	5	5
Gas	7	17 - 50	195
Fine Coal Gasification	1	36	36
Kinetic Power Production	1	10	10
Total	**47**		**683**

Typical PPA implementation

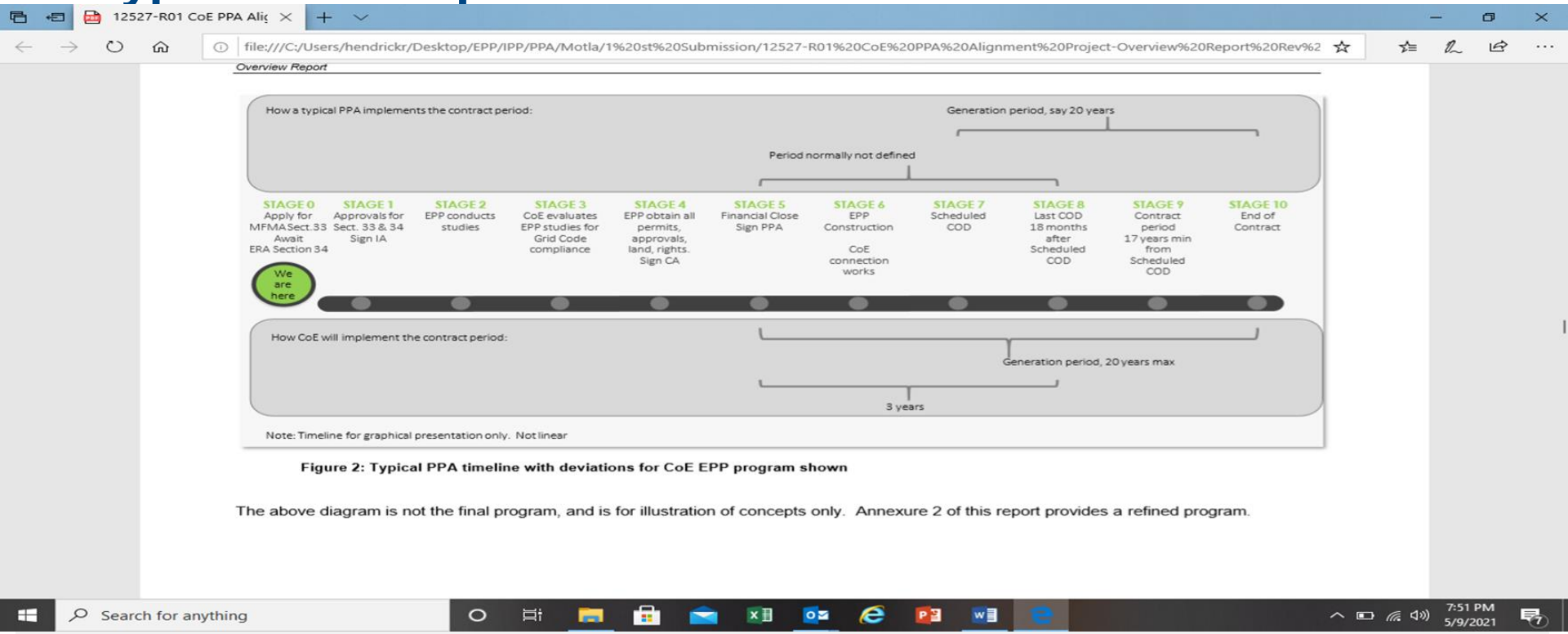


Figure 2: Typical PPA timeline with deviations for CoE EPP program shown

The above diagram is not the final program, and is for illustration of concepts only. Annexure 2 of this report provides a refined program.

CoE IPP 90MW Solar Farm

Risks and risk mitigation

Risks

- Long term contracts
- Deemed energy payments
- Litigation
- Regulations uncertainty

Risks Mitigation

- Adequate skills and proper programs to run the project
- Setting up accurate hours for allowable grid unavailability period based on stability of the grid – to avoid deemed payments
- Connecting IPP generators on stable grids
- Avoiding load shedding IPP generators integration substations
- Proper dispute resolution process to avoid litigation
- Continuous engagement with relevant stakeholders

BENEFITS

- Renewable / Clean Energy
- Savings on Eskom bulk purchases – Estimated 13.9 bn

CoE IPP Programme Financial Procurement Statement		
Summary of Savings per technologies	**Total**	**Percentage saving compared to the overall saving**
PV Solar	1,692,354,826	**12.09%**
Waste to Energy	4,904,828,318	**35.05%**
GAS	7,122,267,468	**50.90%**
Landfill Gas	14,025,655	**0.10%**
Fine Coal Gasification	-	**0.00%**
KPP	258,727,349	**1.85%**
Total	**13,992,203,616**	

- Affordable energy for customers
- Reduction of fossil Fuel reliance
- Reduction of Power losses – *No long transmission lines (load closer to point of generation)*
- Job opportunities – *10 000 temporary and 1000 permanent jobs*
- Climate Change - *Reduction of GHG Emission*
- Economic growth – *Through investment to the local economy*

Support required from other stakeholders

SALGA
- Fight for Munics not to be excluded from licensing exemption

National Treasury
- Special Municipal guarantees to increase PPA fundability & security

Nersa
- What is Nersa standpoint on amendments to schedule 2 ERA concerning organs of state??

DMRE
- Decisive and give straight answers on Sec 34 and Schedule 2 ERA
- License exempt also IPPs doing business with Munics.

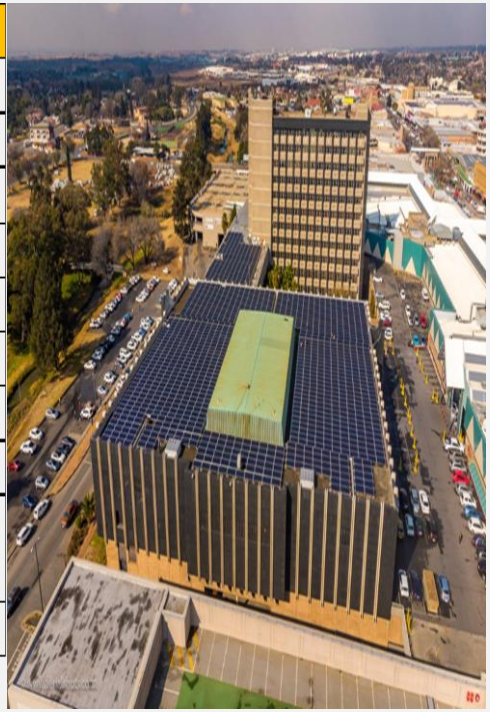
Lessons learned

- **Benchmarking against Eskom Megaflex tariff –** *Megaflex is volatile and difficult to predict*
- **Start with small but fundable projects**
- **A fundable PPA will attract investors**
- **Good Credit rating of Munic can aid PPA fundability**
- **Good Eskom payment history can also aid PPA fundability**
- **Proper PPA risk allocation**
- **Land – Scarcity of land in Metropolitan areas**
- **PPP for electricity generation from Municipal landfill sites with gate fees**

CoE Own Built DER

- **Installation of solar rooftop on Council Buildings**

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



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- **Municipal Biogas landfill generator – 1MW**

Wheeling & Export Credits

- CoE has developed a wheeling framework to integrate **DER** – **270MW** current applications
- Wheeling presents a new revenue stream for the Munics through **DUoS charges:**
- **Based on Eskom DUoS rates at 4.35% CoE Technical loss DUoS rates (CoE) All Seasons G.2.1 Energy charge (R/kWh) R 0.07,81**

- **CoE has an embedded generation integrated framework**
- **(SSEG) over 200MW of registered embedded generators (SSEG) integration**
- **Introduction of feed – in tariff**

Thank you

City of Ekurhuleni