

# 69<sup>TH</sup> AMEU CONVENTION

**1 - 4 October 2023**

CSIR International Convention Centre

**Confronting South Africa's Electricity Crisis in the context of a 'Balanced Just Energy Transition' (BJET) and the need for a reliable and resilient national electricity grid**

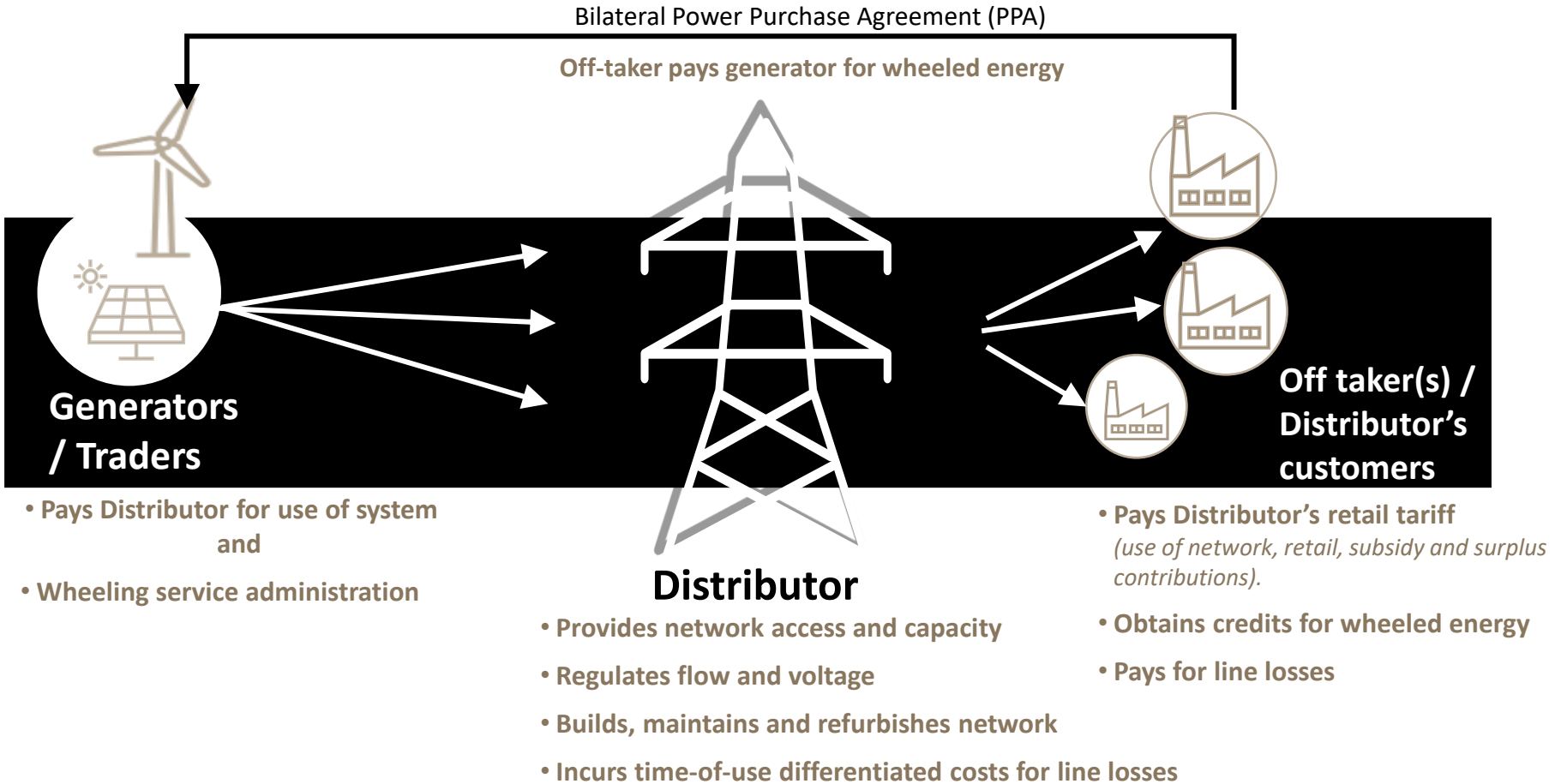
## **Building blocks for an effective Wheeling service**

**Presented by Terry Njuguna**

**Eskom Distribution**

# Building blocks for an effective Wheeling service

## Wheeling overview

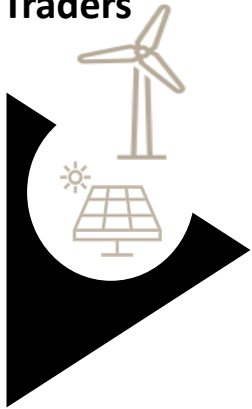


- ✔ Third-party transportation of electricity
- ✔ No separately identifiable electrons transported
- ✔ Needs to balance Distributors, generators, traders and off-taker needs.

With the future in mind.....

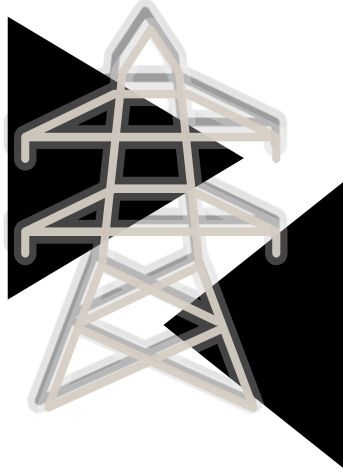
# Influencing factors

**Generators /  
Traders**



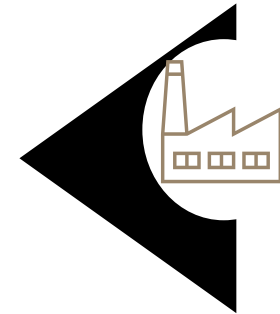
- **Financing needs**  
*(long-term funding)*
- **Network access and reliability.**
- **Regulatory changes**

**Distributors**



- **Changes to line flows and voltage regulation.**
- **Supply and demand balance**
- **Network investment costs**
- **Changes in time-of-supply costs**
- **Line losses and tariff subsidy recovery.**
- **Tariffs and regulatory changes**
- **Supplier of last resort**

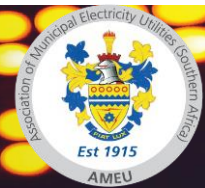
**Off taker(s) /  
Distributor's customers**



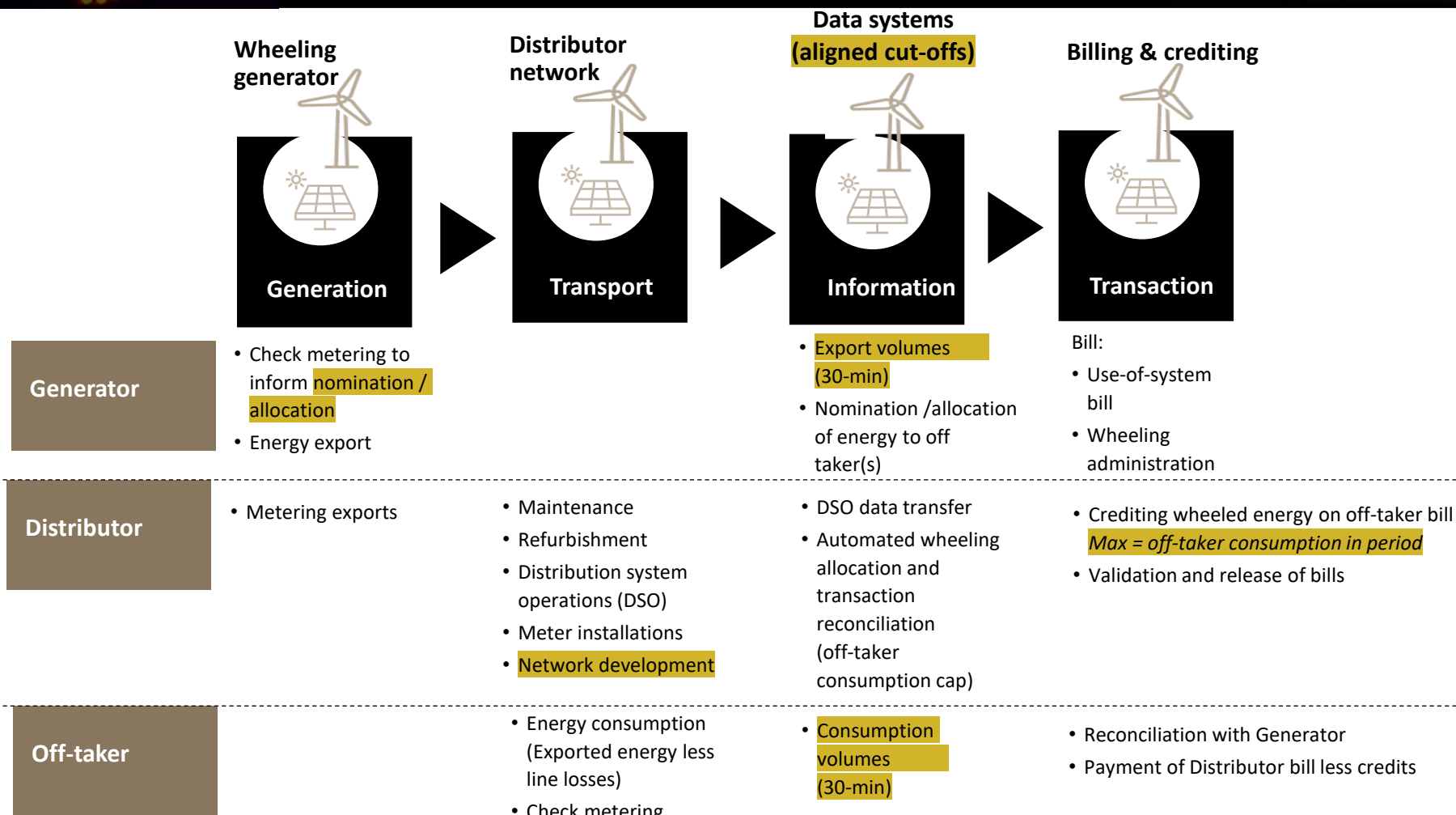
- **Renewables without upfront capital costs.**
- **Network access and reliability.**
- **Credit for wheeled energy.**
- **Generator pricing**
- **Regulatory changes**

✔ A certain future : increased grid complexity and activity

✔ Curtailment risks: 7% of wind in China (2018);  
25% of Variable renewable generation in Ontario (2017).



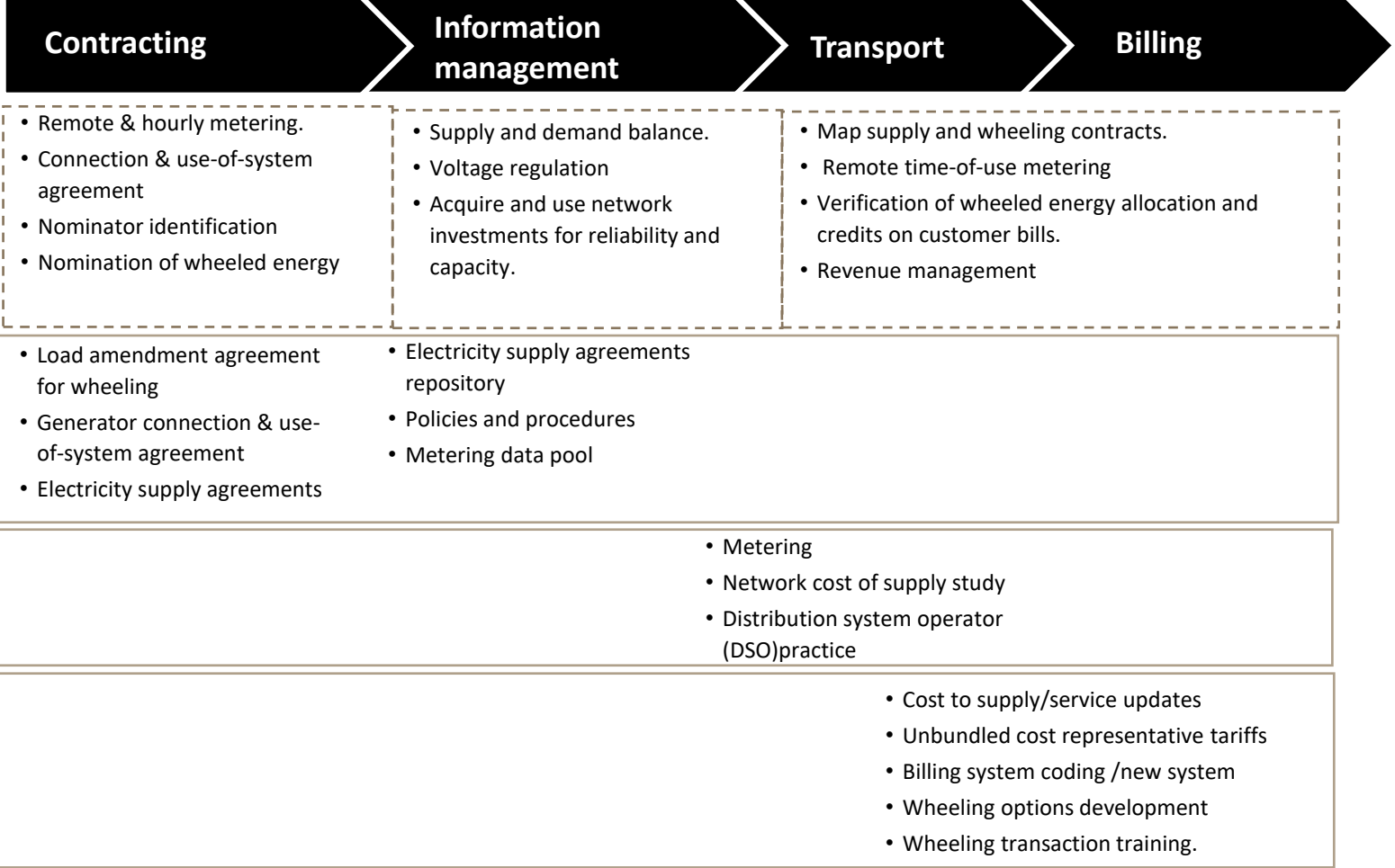
# Wheeling transaction and related activities



- ✔ Max wheeled energy = off-taker consumption in period.
- ✔ Possible future forecasts of wheeled energy for balancing purposes (supply = demand)
- ✔ Capital and more capital for a reliable network

# Building blocks for an effective Wheeling service

## Wheeling service value-chain



# The Building blocks

## Execution

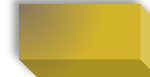
- Unbundled and cost representative
- Enable that only the wheeled energy is credited
- Tariff subsidy transparency



**Tariff structures**

## Enablers

- Creates the possibility of achieving the required wheeling outcome.
- Capacitation includes the human resources and network management capabilities



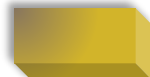
**Capacitation**



**Contracting**

## Foundation

- Regulation enables the service and caters to the interest of all involved stakeholders.
- Network capital is the essence of a sustainable Distributor business.
- Information technology for efficiency, accuracy, cost representation and wheeling options development.

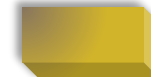


**Regulation**



**Network capital**

Capacity, reliability, metering.



**Information technology**

# Conclusion

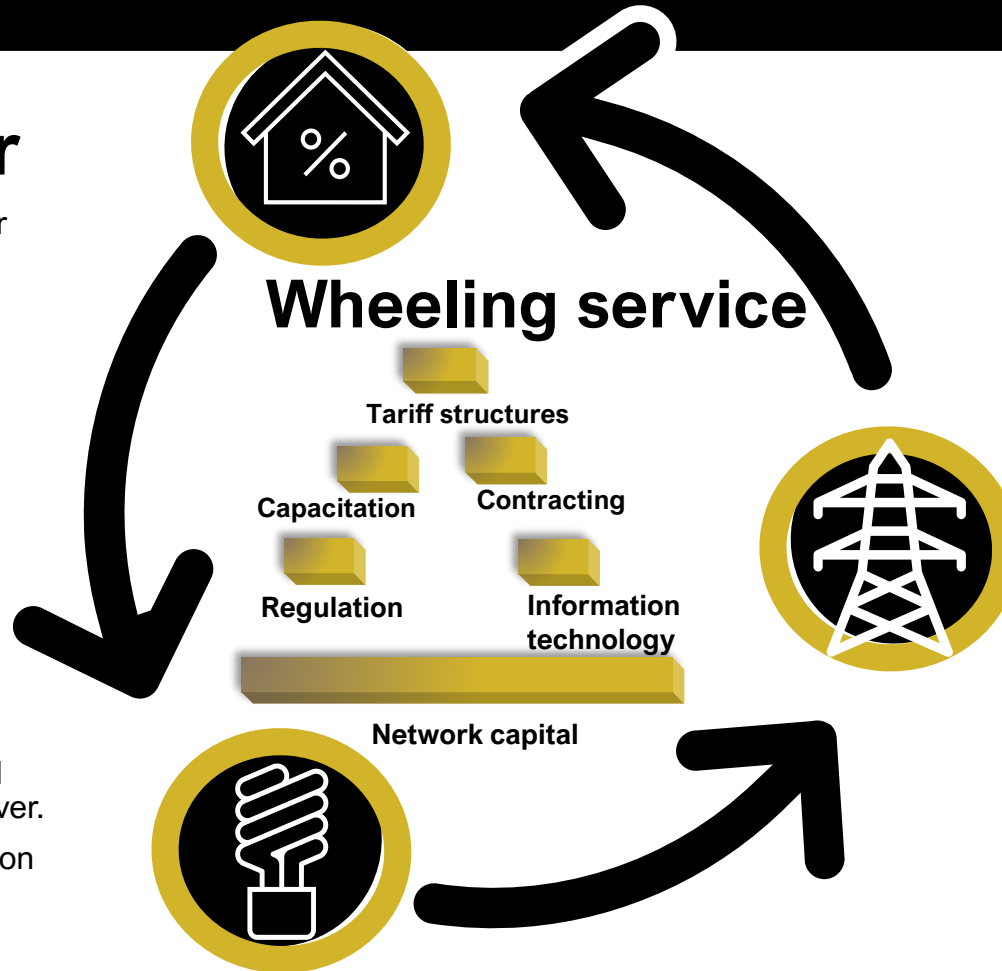
## Generator

- Financial close driver
- Investment returns
- Meter accuracy and time-periods
- Reliable network

## Off-taker

- Decarbonization and cost optimization driver.
- Crediting leveraged on meter accuracy and time-periods.

## Wheeling service

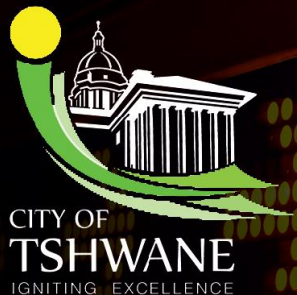


## Distributor

Business sustainability driven by network returns supporting customer retention

✔ Building blocks are the levers and their organization provides structure to guide development and investment .

✔ Evaluate service on matrices covering financial close, Distributor returns and cost recovery and off-taker benefit from alternative supply.



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The Wheeling service at Eskom Distribution offers an opportunity to engage with a preexisting wheeling practice and can be accessed at <https://www.eskom.co.za/distribution/wheeling/>

# Thank you!

