

## Microgrids for Mines

Go green and reduce operation costs with smart storage tech + high efficiency gensets

**2020** Energy and Mines  
Virtual Summit

**Reliability**

**Cost reduction**

**Reduce GHG**



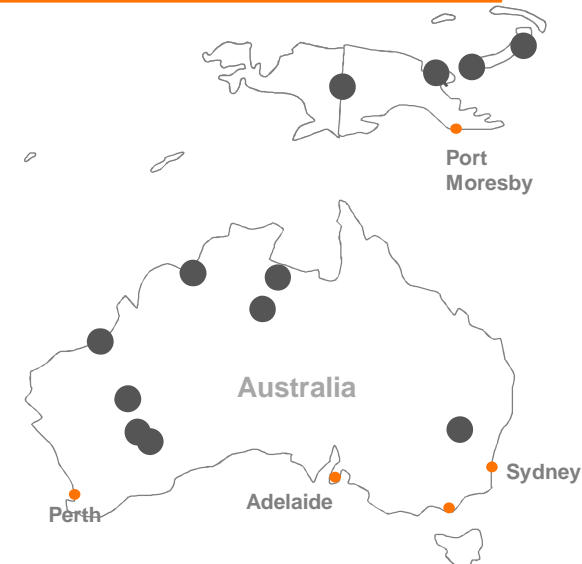
## Essakane

- **Largest solar PV-engine hybrid solution in Africa**
- Solar plant 15 MWp + 11 x Wartsila gensets (**total 57 MW**)

## Fekola Mine

- **Optimised energy production** at a fuel-dependent, energy-intensive operational mining facility
- Wartsila delivering **17MW / 15MWh BESS**
- **Project is expected to reduce:**
  - Gold processing costs **by more than 7%**
  - Long-term savings on mining operations, **~ 13 million L fuel savings / year**

## AUS mining projects



LAST UPDATE TIME  
Apr 12, 2019 1:55:40 PM

CONSTRAINT RELAXATIONS  
None

Next 24 Hours Refresh every 5m

The figure consists of two stacked area charts sharing a common x-axis representing time from 06 PM on Friday, April 12, to 12 PM on Saturday, April 13, 2019. The y-axis for both charts represents power in MW, ranging from 0.0 MW to 2.2 MW.

**Top Chart: Power Generation and Load**

- Engine Scheduling Service Scheduler Load Forecast:** Represented by a black line, showing the total load forecast.
- Engine Scheduling Service ESS Power Forecast:** Represented by a green area, showing the power forecast from ESS.
- Engine Scheduling Service Served:** Represented by a blue area, showing the power served by the engine scheduling service.
- Engine Scheduling Service Engine1 Forecast:** Represented by a red area, showing the power forecast for Engine 1.
- Engine Scheduling Service Engine2 Forecast:** Represented by an orange area, showing the power forecast for Engine 2.
- Engine Scheduling Service Engine3 Forecast:** Represented by a brown area, showing the power forecast for Engine 3.
- Engine Scheduling Service Engine6 Forecast:** Represented by a light blue area, showing the power forecast for Engine 6.
- Engine Scheduling Service Engine7 Forecast:** Represented by a dark blue area, showing the power forecast for Engine 7.
- Engine Scheduling Service Engine8 Forecast:** Represented by a dark green area, showing the power forecast for Engine 8.

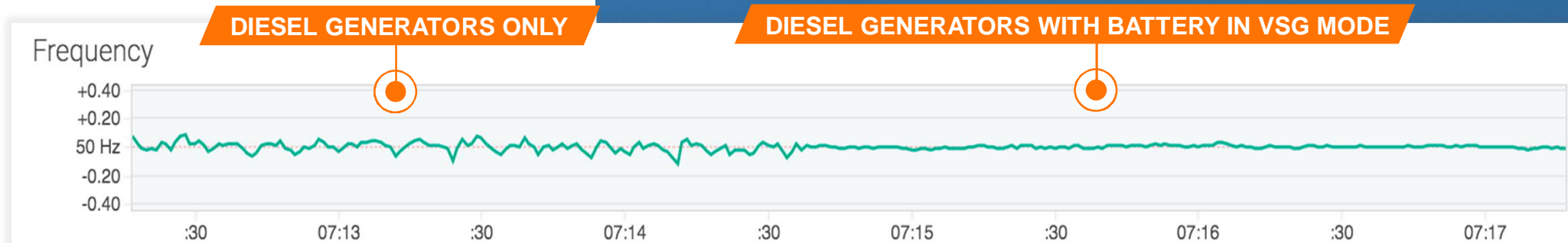
**Bottom Chart: AC Real Power**

- Load Meter AC Real Power:** Represented by a black line, showing the real-time load.
- Battery Power Plant AC Real Power:** Represented by a green area, showing the real-time power from the battery plant.
- PI Power Plant AC Real Power:** Represented by a yellow area, showing the real-time power from the PI power plant.
- Wind Power Plant AC Real Power:** Represented by a blue area, showing the real-time power from the wind power plant.
- Genset 1 AC Real Power:** Represented by a red area, showing the real-time power from Genset 1.
- Genset 2 AC Real Power:** Represented by an orange area, showing the real-time power from Genset 2.
- Genset 3 AC Real Power:** Represented by a brown area, showing the real-time power from Genset 3.
- Genset 6 AC Real Power:** Represented by a light blue area, showing the real-time power from Genset 6.
- Genset 7 AC Real Power:** Represented by a dark blue area, showing the real-time power from Genset 7.
- Genset 8 AC Real Power:** Represented by a dark green area, showing the real-time power from Genset 8.



The energy management system is turning the promise into reality:

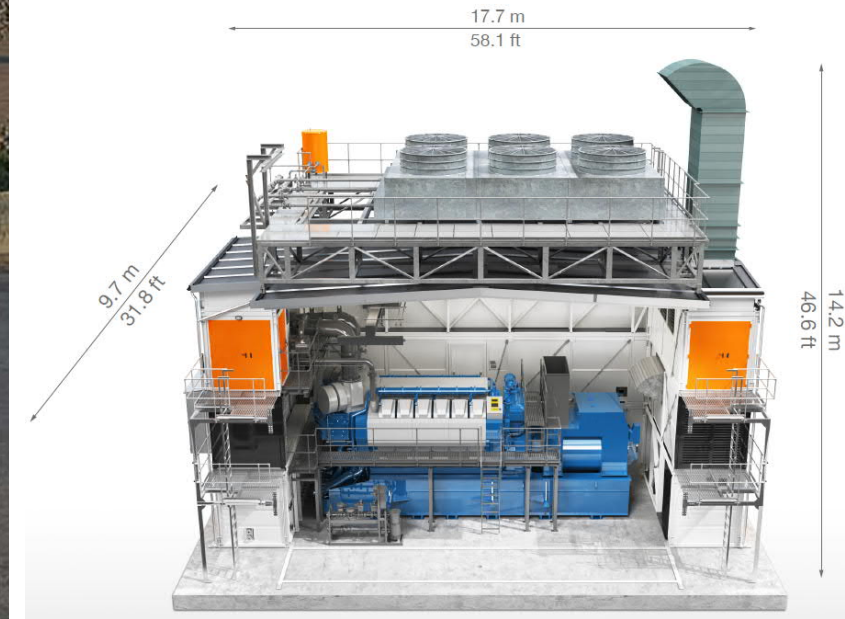
- ▲ **Increased** frequency stability
- ▼ **Reduced** diesel/gas consumption



Highly-prefabricated and  
expandable solution

High-efficiency gensets

Deployed on Syama Gold mine  
(Mali - owned by Resolute Mining)



# Thank you!



**Loïc Charmoille**

**Business Development Manager,**  
Energy Storage and Optimisation,  
Wärtsilä Energy Business

**+61 404 020 857**

[loic.charmoille@wartsila.com](mailto:loic.charmoille@wartsila.com)





**WÄRTSILÄ**