



Biogas Cogen

JBS Ottumwa

About JBS

- We are a global protein company with businesses in the US, Canada, Mexico, Europe, the UK, Australia, New Zealand, Africa, Asia & South America
 - Beef
 - Pork
 - Chicken
 - Lamb
 - Salmon
 - Value Added & Prepared Foods
 - Leather



JBS Ottumwa

- Built in 1976
 - 2 shift pork operation
 - 2,000+ employees
 - 20,800 head per day processing capacity
 - Slaughter, cut floor, rendering, bacon, warehousing, wastewater
- Water Treatment
 - NPDES permit
 - Direct discharge to Des Moines River
 - Capacity: 2.0 MGD



Biogas Cogeneration

- Technological Innovation 2nd Prize
- Project started September 2021 and commissioned in June 2023
- 1.4MW Jenbacher genset
 - \$4.3M capital investment
 - Fuel source from wastewater biogas
 - Electricity generated and consumed on site to reduce grid reliance
 - Waste heat captured and utilized to increase temperature of influent flow to Anaerobic Lagoon
 - RECs created and sold to 3rd party

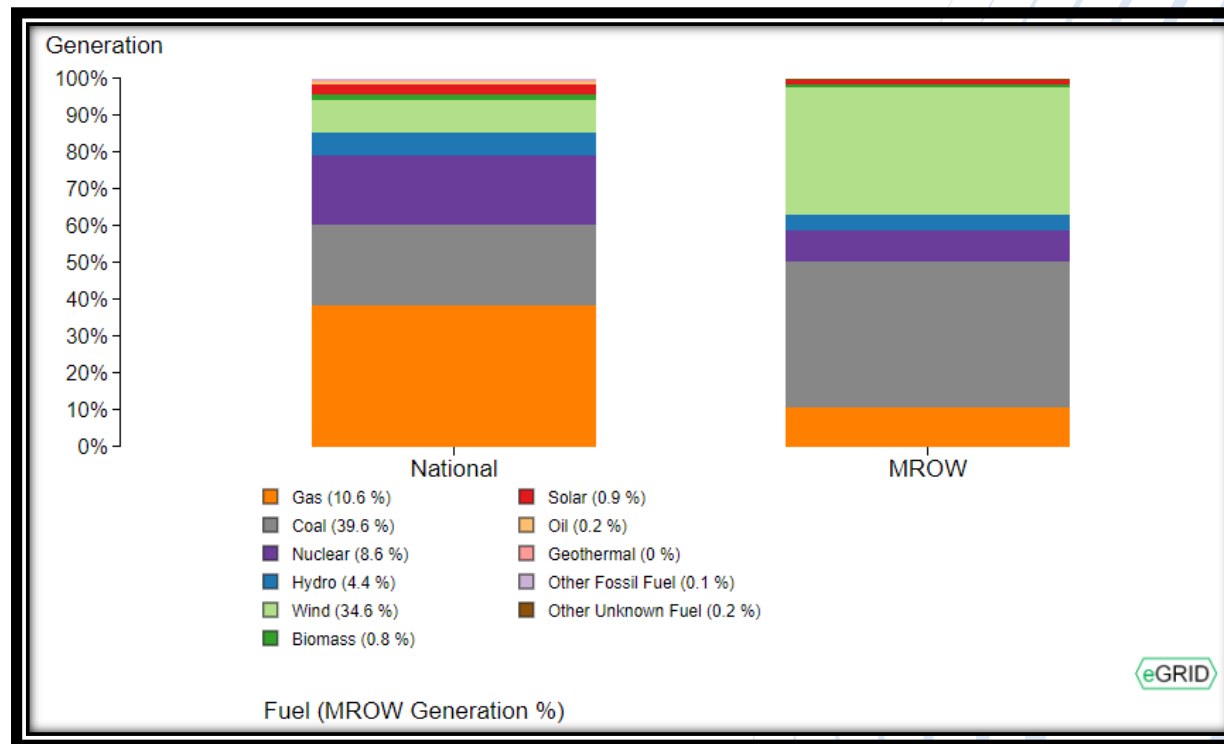


Biogas Cogeneration



Benefits to the grid

- eGrid subregion averages 995.8 lbs CO₂/MWh
- Target generation 13,500 MWh per year (~6,100 tCO₂e)



Benefits to Wastewater

- Improved anaerobic lagoon performance
 - Preheating influent flow optimizes mesophilic methanogenesis
 - Analysis of COD removal and correlated parameters
 - Real time monitoring of SCF and CH₄%
- Improved nutrient management
 - Consistent COD removal offers more control over secondary treatment
 - Must manage carbon availability for biological processes
- P&L incentive for plant to engage with wastewater
 - Lagoon loading feedback and operational engagement
 - Continuous improvement of upstream and downstream processes

Best Practice sharing

- Project executed in tandem with JBS Marshalltown and JBS Beardstown
 - Collectively known as MOB
 - 3rd party partnerships assisted in engineering and project management
 - Overcame challenges with permitting and material delivery
- Similar project executed in Plainwell, MI for peak shaving
 - Cost savings associated with peak demand
 - RECs retained and reduce scope 2 GHG ~15%
- Feasible to duplicate at any biogas producing facility



Thank you – Questions?