



National Conference

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**SESSION 3:**  
**PROJECT  
DELIVERY**

**Jason Pugh** – CEO,  
East Rockingham Waste to Energy

**David Jettner** - General Manager,  
Corporate Development & Strategic  
Projects, Opal

# Council Waste Supply Agreement (WSA's)

# Discussion Topics WSA's:

- Risk Profile: what risks should the Council accept and what risk should they avoid?
- Waste Arising Contracts: what are they?

# Discussion Topics WSA's:

- What Terms should I sign to?
- Processible waste?
- Waste to Energy plant availability.

# Discussion Topics WSA's:

- Project Plans: what plans should be appended to a WSA?
- Education: how can the WSA meet my community waste education objectives.
- Community messaging on WSA's.

# Discussion Topics WSA's:

- Regional Councils contracting: what makes them work?
- What other foundation agreements underpin a WSA: (Principals Agreement Establishment Agreements, Financiers Side Deed).





# Edward Nicholas

Executive Director, Tribe Infrastructure Group

# Project Delivery: Crunching the numbers

Some questions to warm things up:

1. Why does anyone borrow money?
  - To buy something today with money you'll have in future
2. What does any lender want in return?
  - Security of repayment – of the principal and the interest
3. For an asset that doesn't exist yet, what security can a borrower give to a lender?
  - Guarantees – personal / corporate
  - Security over other assets
4. But what if you can't / won't and you still want to spend the money...?
  - Enter the world of infrastructure project finance...

## WHAT IS PROJECT FINANCE?

**PROJECT FINANCE IS A METHOD OF DEBT FINANCING A PROJECT OR A PARTICULAR ASSET, CHARACTERISED BY CASH FLOW LENDING AND ITS NON RECOURSE NATURE**

**Cash Flow  
Lending**



The primary source for repayment of debt is revenue produced by the asset

**Non Recourse**



The assets are the primary security for the debt finance, with no or limited recourse to the project sponsors

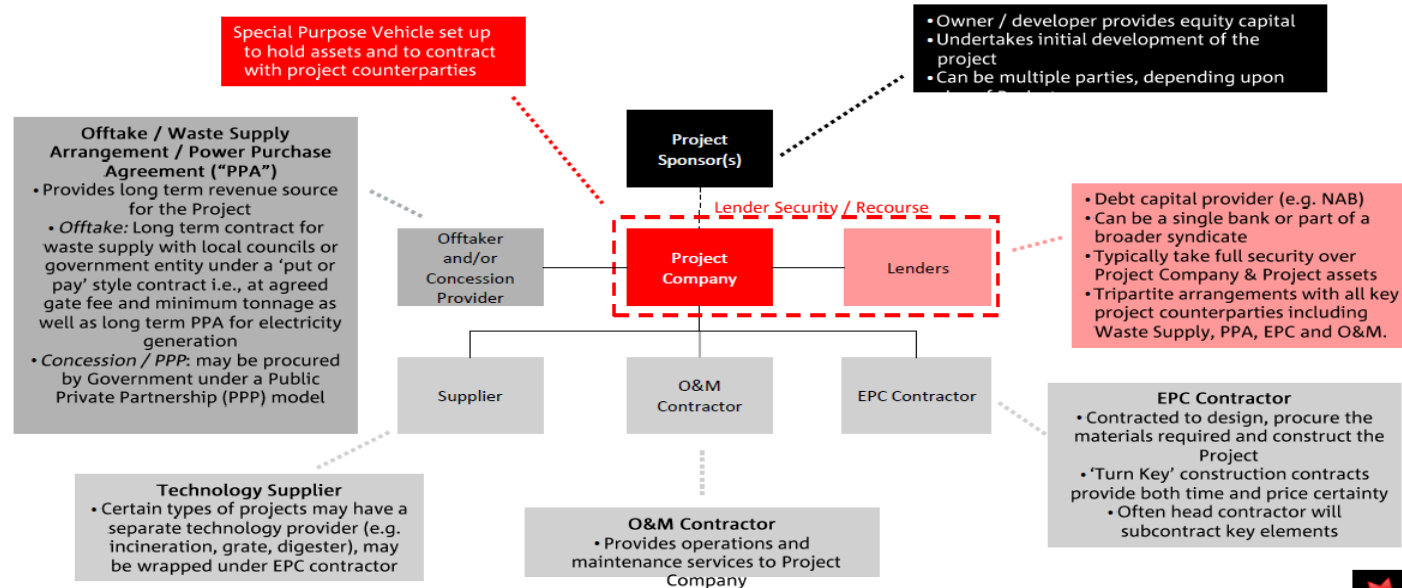
**Highly Structured**



Projects typically have comparatively higher levels of leverage than traditional corporate recourse transactions

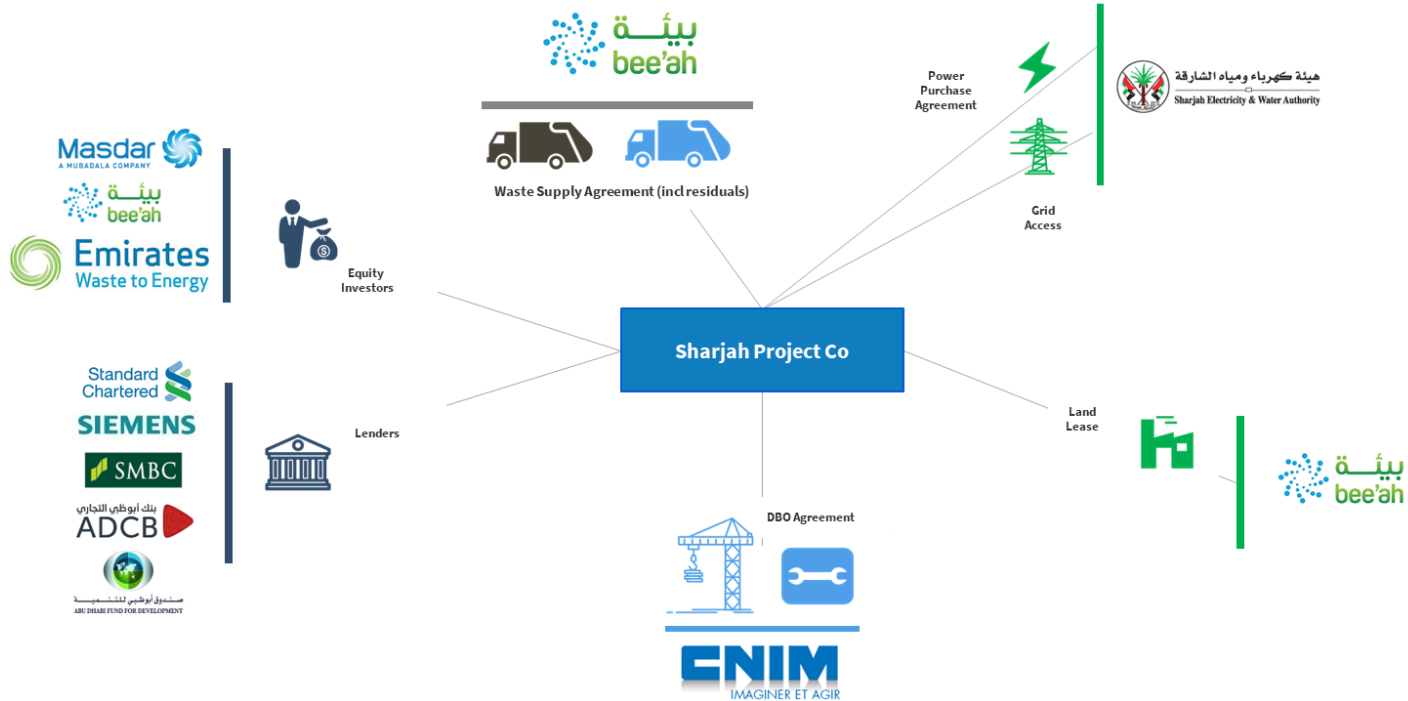
# PROJECT FINANCE STRUCTURE

THE VALUE OF A PROJECT IS CREATED BY THE 'WEB' OF CONTRACTUAL ARRANGEMENTS ENTERED INTO WITH KEY COUNTERPARTIES. THE PROJECT ASSETS PROVIDE THE PRINCIPAL SECURITY FOR THE DEBT FINANCE (TYPICALLY WITH NO OR LIMITED RECOURSE)



# Sharjah WtE project, UAE

Structure at FC in 2018. Now in operation.

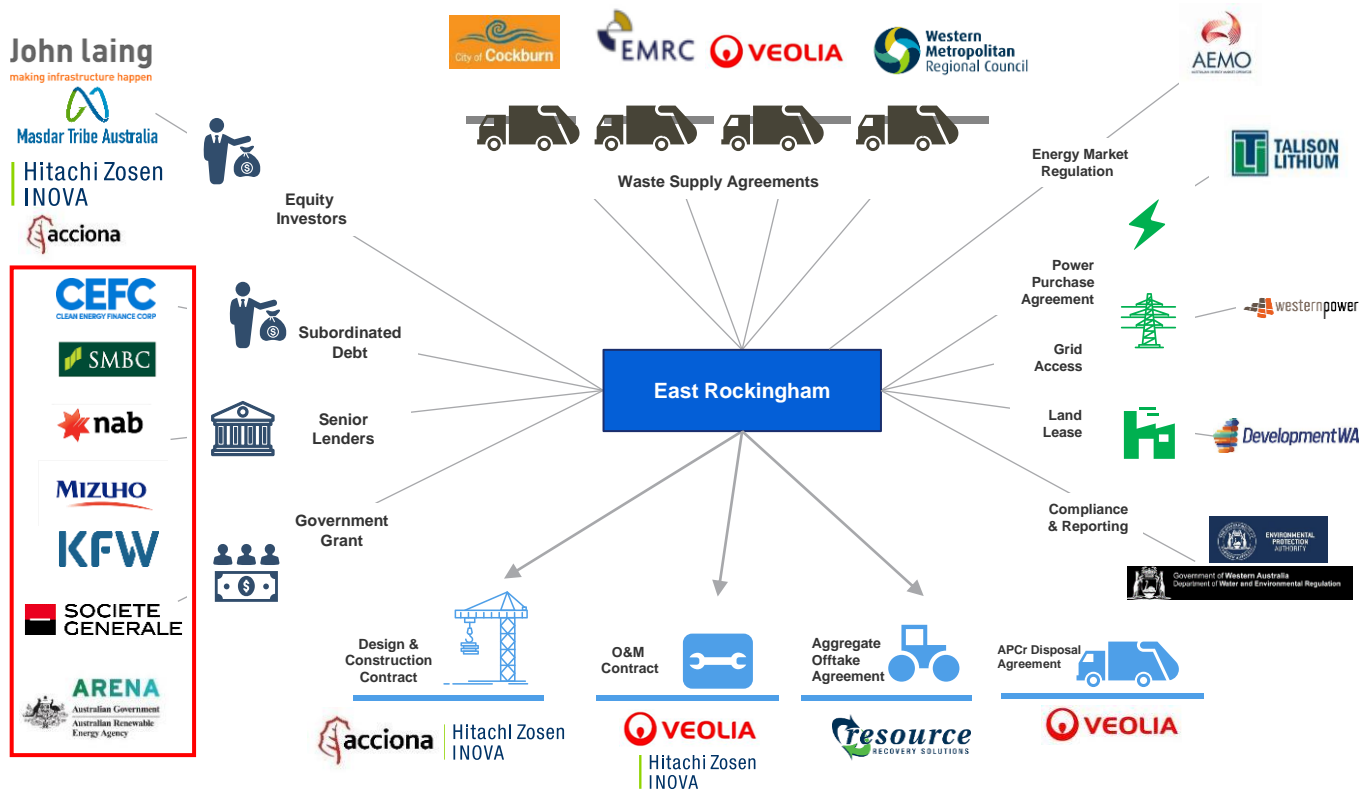


## Key Features:

- Fully contracted waste supply agreement (Bee'ah) and power offtake (SEWA)
- Bee'ah responsible for process residues.

# East Rockingham Waste to Energy, Perth, WA

Structure at FC in December 2019. Under construction.



**Key Features:**

Multiple waste supply agreements; 33% merchant on waste (at FC)

## Utopia WTE

### Operating parameters

- Capacity: 300,000 tpa
- Generation: 30 MW
- Operating hrs: 8,000 pa

### Financial parameters

- All-in cost: \$600m
- Debt-to-equity: 65/35
- Total debt: \$390m
- Total equity: \$210m



## Utopia WTE

### Revenue

- Waste throughput: 300,000 t x \$150/t avg. gate fee = \$45m
- Electricity sales: 30 MW x 8,000 hrs x \$50/MWh = \$12m
- Total revenue = \$57m**

### Costs

- Operating costs: 300,000 tpa x \$50/t = (\$15m)
- Interest costs: \$390m @ 6% interest = (\$23.4m)
- Principal costs: \$390m / 20 years = (\$19.5m)
- Total costs = (\$57.9m)**

*And so cashflow available as dividends on \$210m of equity... = ?*

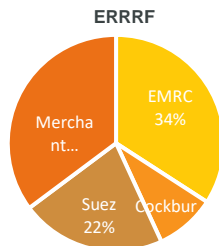
**Takeaway: Long & deep partnerships required between complementary subject-matter experts to make these once-in-a-generation projects become a sustainable reality for Councils**

# Project Economics - Sharjah vs East Rockingham

## Waste (by Customer)

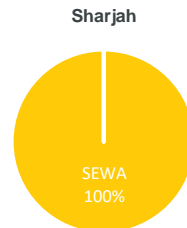


300,000 tonnes per annum

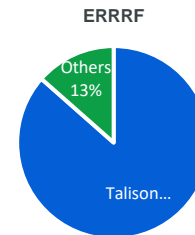


300,000 tonnes per annum

## Power (by Customer)

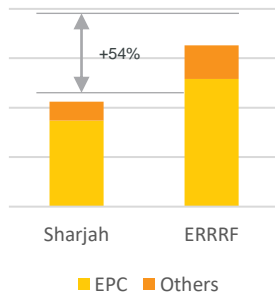


29.3 MW  
234,000 MWh per annum

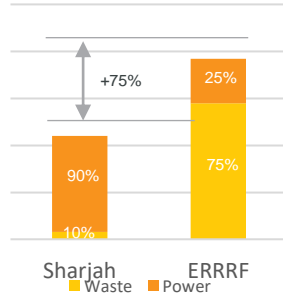


28.9 MW  
230,000 MWh per annum

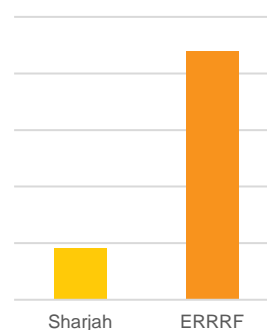
## Capex



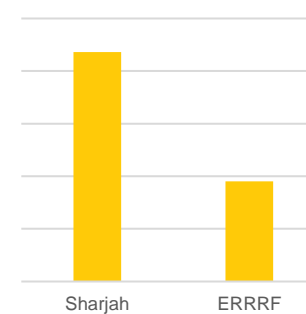
## Revenue Split (Year 1)



## Gate Fee



## Power Tariff



Source: Tribe Infrastructure Group. Tariffs and values removed due to confidentiality.

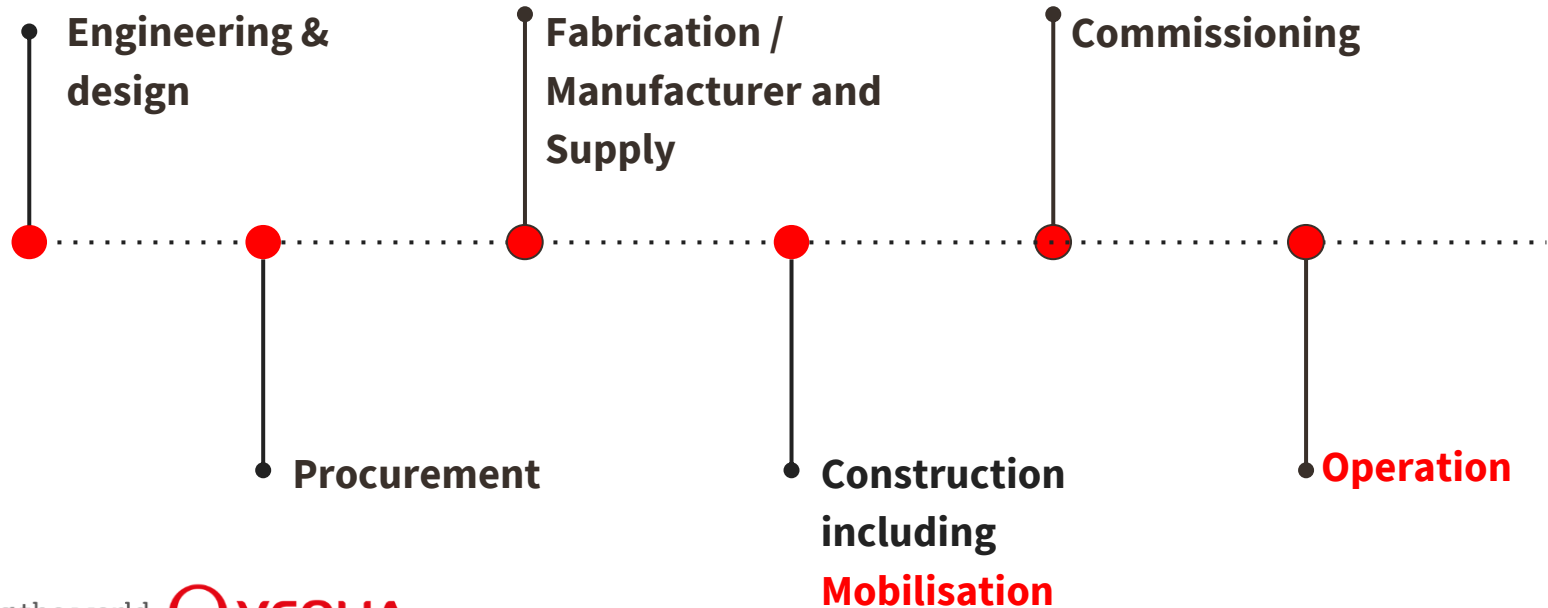


# Kevin Souster

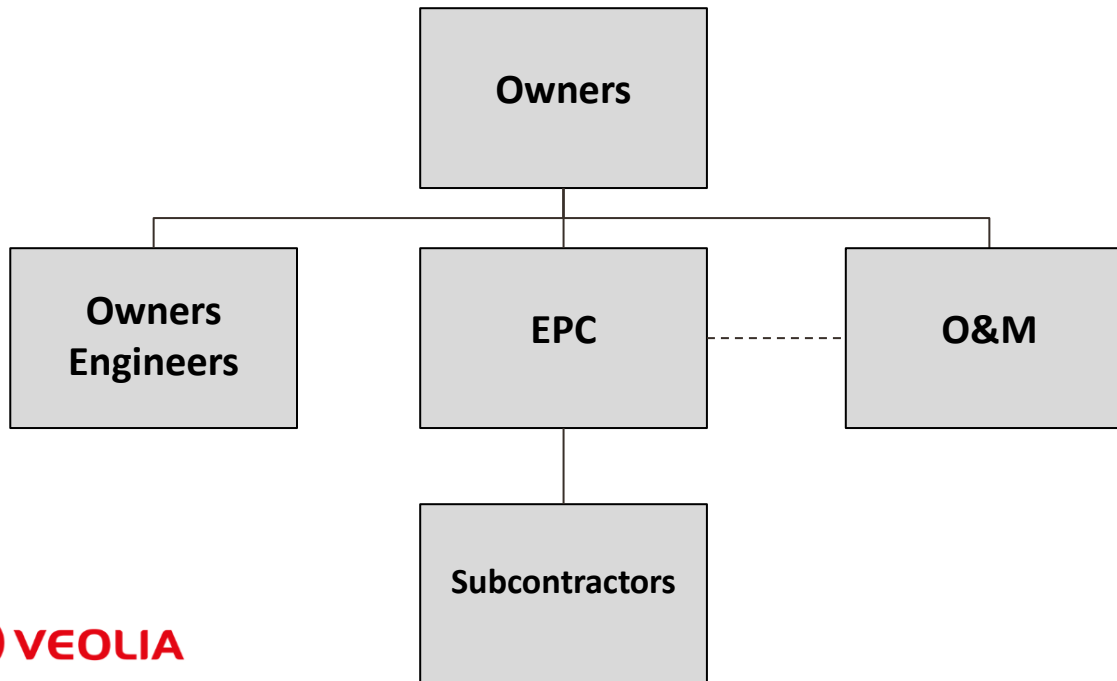
ERF Operations Director, Veolia

# Project Delivery: Mobilisation and operations

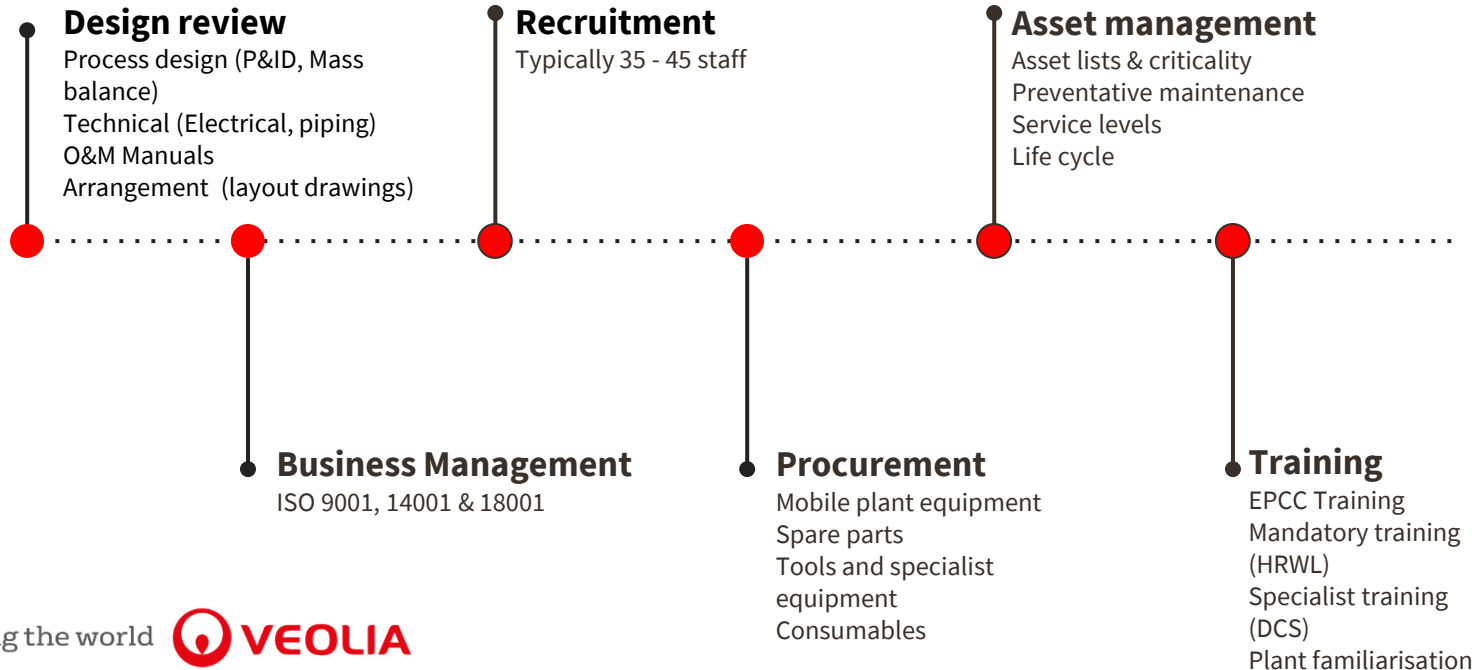
# Project Delivery



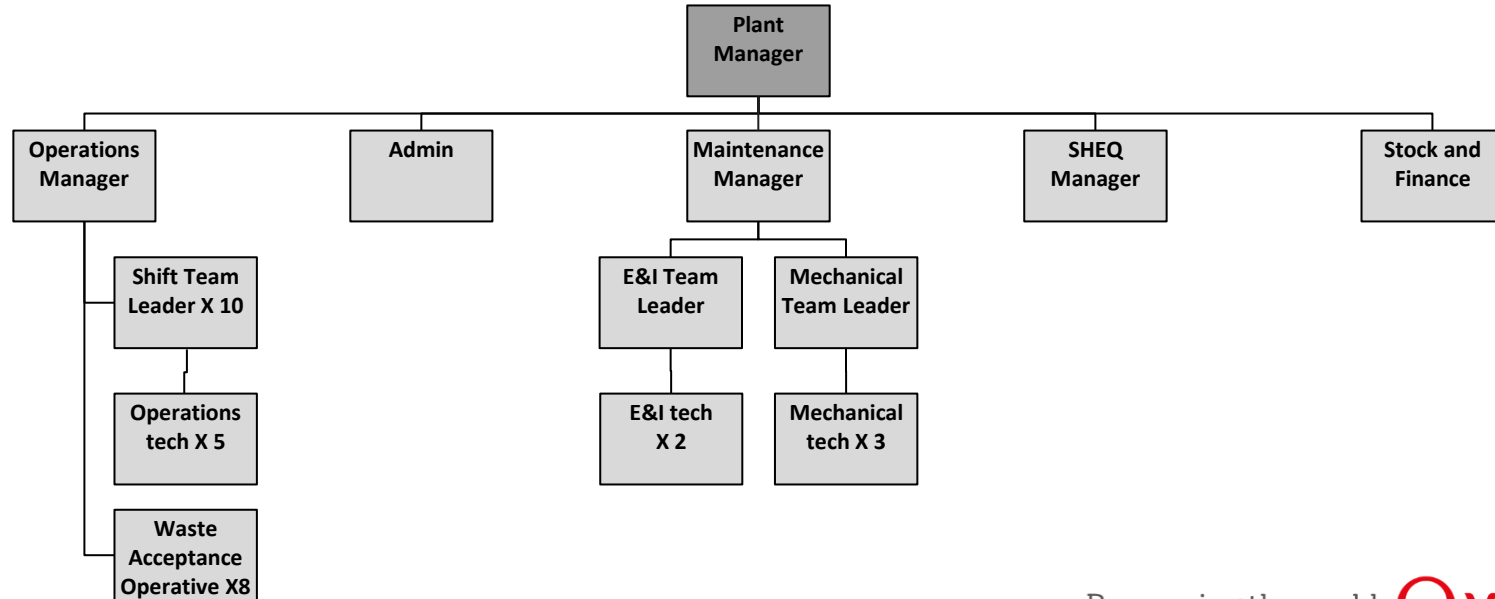
# Project Delivery Structure



# Mobilisation



# Typical Org Design





# Operation

- Availability
- Outages / Shutdowns
- Waste Scheduling / Delivery
- Waste Net Calorific Value
- Interfaces and Reporting
- Education and Site Visits
- Community Engagement

# Availability

The guaranteed availability of the W-t-E facility is expected to be ca. 8,000 hours annually. In some cases conservative availability of 7,800 hours is being indicated.

The number of the guaranteed operating hours is one of the factors influencing designed capacity of the plant and has impact on the final capital and operating costs of the facility.

Plant Availability - “Normally” defined as when waste being processed and Industrial Emissions Directive requirements for burning waste are achieved.

# Outages / Shutdowns

Planned outages are scheduled periods during which a waste-to-energy (WTE) facility temporarily stops its operations for maintenance, repairs, and upgrades.

Outages are essential for ensuring the long-term performance and safety of WTE facilities.

Reasons for planned outages include routine maintenance tasks, regulatory compliance, equipment inspections, and the replacement of worn or damaged components.

Scheduled outages are often planned well in advance, taking into consideration the power price market and labour availability.

Outage planning takes into account waste delivery schedules to minimize waste buildup during the downtime.

The duration of a planned outage can vary from a few days to several weeks, depending on the extent of work required. Typically, a planned outage is 14 - 21 days (waste to waste)

# Waste Scheduling and Delivery

Waste scheduling involves planning the delivery and processing of waste materials at a WTE plant efficiently and effectively.

Plants typically receive waste from various sources, council municipal collections and commercial and industrial suppliers.

Effective scheduling requires a good understanding of the waste composition, the calorific value, ash content and special handling.

Effective waste scheduling ensures a steady supply of waste to maintain the continuous operation of the WTE facility.

Coordination with waste suppliers, transporters, and regulatory agencies is crucial to maintain a smooth WtE operation and meet environmental standards.

Effective scheduling contributes to the overall success of the WTE plant by ensuring consistent energy production and waste management.

# Waste Net Calorific Value

Net calorific value (NCV) of waste is a measure of the energy content in waste materials, accounting for the energy released during combustion and factoring out the energy needed to evaporate water in the waste.

A higher NCV in waste indicates a greater energy potential within the waste.

Understanding the NCV of your waste is fundamental to the design of a WtE facility.

The NCV of waste impacts the efficiency and energy output of WtE facilities; a WtE facility requires less Waste with a higher NCV to produce the same amount of electricity or heat

WtE Plants are designed for a range of NCV depending on the type of waste being treated.

# Interfaces and Reporting

Councils require regular reports and compliance documentation from WTE operators to ensure that the facility is meeting its environmental and operational obligations. The interface between local councils and WTE facilities is crucial to ensure effective waste management, environmental protection, and community engagement.

**Emissions Monitoring:** Regular reporting on emissions with continuous emission monitoring systems (CEMS) to meet environmental regulations.

**Waste Throughput:** Documenting the quantity and types of waste processed.

**Energy Output:** Reporting on the amount of energy generated by the WTE facility.

**Safety Records:** Reporting on incidents, accidents, and safety measures in place.

**Environmental Compliance:** Documentation of adherence to environmental standards.

**Public and Stakeholder Communication:** Reporting on community engagement efforts, feedback, and concerns addressed.

# Education and Site Visits

Educational facilities at WTE plants aim to promote sustainability, recycling, and responsible waste disposal practices.

The presence of such a facility often reflects the commitment of the WTE plant operator to engage with the community and promote environmental stewardship.

These facilities serve as learning centers, allowing visitors to gain insights into how waste is converted into energy through the WtE process.

The primary purpose of such a facility is to raise awareness about sustainable waste management and the benefits of energy recovery from waste.

Visitors can often take guided tours to observe the different stages of the WTE process, from waste intake to energy production.

Educational displays, multimedia presentations, and interactive exhibits help convey information about the environmental and economic advantages of WTE.

# Community Engagement

Ongoing community engagement remains crucial for ensuring a positive relationship between the project and the residents during the operational phase.

**Regular Updates:** Provide the community with regular updates on the performance, safety records, and environmental reporting of the facility.

**Community Advisory Boards:** Establish community advisory boards that include local residents, community leaders, and project representatives. These boards can serve as a forum for ongoing dialogue, issue resolution, and feedback.

**Environmental Monitoring:** Share the results with the community, all information should be open, available and transparent.

**Educational Initiatives.**

**Complaint Resolution:** A robust complaint resolution process ensuring the local community have a direct line of contact with the facility and complaints are dealt with promptly.



# Community Engagement

**Community Investment:** Investing in local community projects or initiatives as a way to give back to the community and strengthen relationships.

**Public Meetings:** Continue to hold public meetings to keep the community informed about any operational changes, future plans, and opportunities for collaboration.

**Thanks for listening, any further questions?**

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