SOILCO
The Life-Giving Soil Company

Waste 2024 Annual Conference

SOILCO's In-Vessel Composting Journey: Looking Forward - Looking Back

The Life-Giving Soil Company

Introducing SOILCO Pty Ltd

- Founded in **1974**, quarrying and selling soil
- Commenced composting operations in **1985**
- Strong distribution networks in agricultural and urban markets
- Manufacturer of **quality assured** compost, mulch and soil blends
- Specialist in the **design**, **build** and **operation** of innovative organics recycling facilities

Vision, Mission and Values

Vision:
Our vision is to manage state of the art organics recycling facilities that produce innovative and worlds' best products and services that meet the soil improvement needs of Australian communities.

Mission:
Our mission is to transform organic resources into the world's best products to regenerate and enhance the health and productivity of soil and to maximise our contribution to clean energy and sustainable communities.

Courage
We seek to continuously improve.

Authenticity
We deliver against our promises and what we stand for.

Achievement
We make things happen. We remain nimble.

Respect
We put people first. We ensure Quality, Safety and Environment are built into everything that we do.

Infrastructure Network Overview

SOILCO successfully operates a state-of-the-art network of licensed organics processing facilities across Eastern Australia.

SOILCO's infrastructure experience spans different technology solutions, including:

- Open windrow (OW)
- In-vessel composting (IVC) tunnels
- Aerated / covered aerated static piles (ASP/CASP)

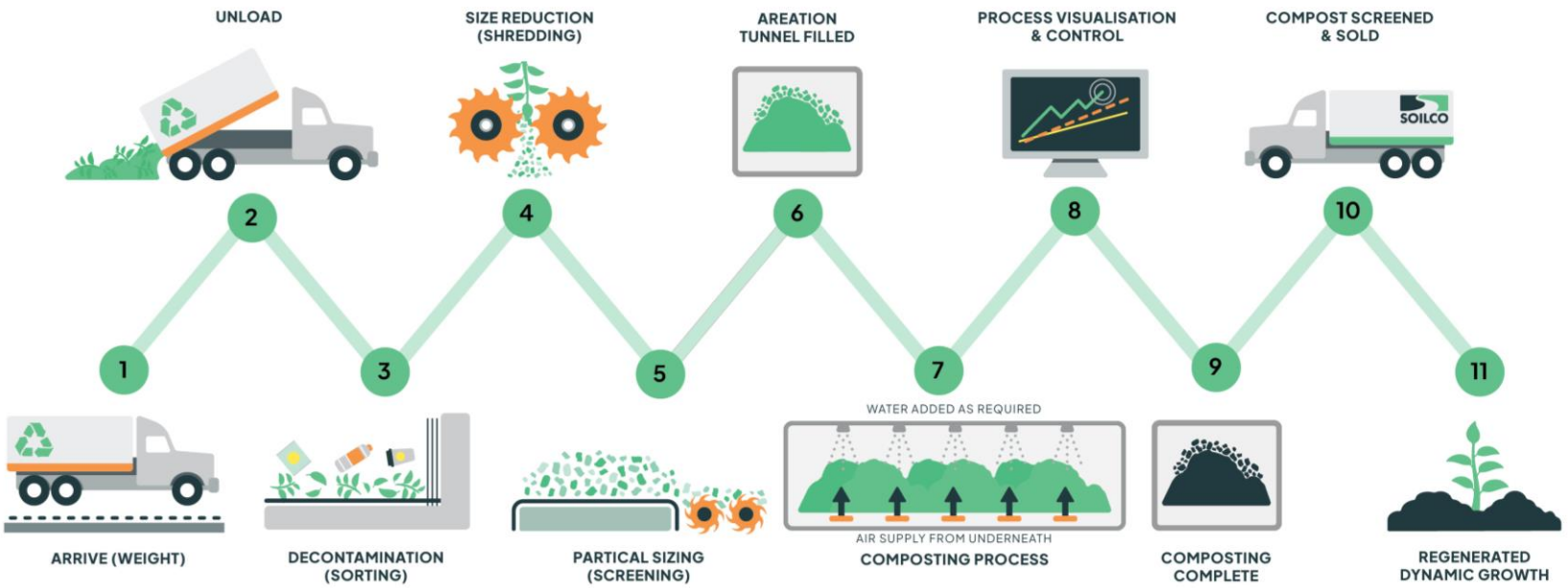
Dry anaerobic digestion (AD) is also being proposed at some of SOILCO's greenfield sites.

Technology Overview

	Facility	Licence Capacity (tpa)	IVC	ASP	CASP	AD	OW
Operational	Kembla Grange ORF / CMF	110,000	✓				
	Nowra CMF	98,000		✓			✓
	Tweed OPF	25,000	✓				
	Canberra CMF	>100,000					✓
Proposed	Badgerys Creek CECMF	220,000	✓			✓	
	Pinkenba CECMF	>200,000	✓			✓	
	Bromelton CMF	>200,000		✓			✓
	Bega OPF (awarded)	30,000			✓		✓

SOILCO’s In-Vessel Composting Journey: Looking Back

SOILCO's In-Vessel Composting Process



The Journey so far…

In **2016**, SOILCO built its first IVC tunnel.

After more than 42 years in business and 31 years of composting, this represented a key step change in SOILCO's infrastructure offering.

Fast forward to 2024, and SOILCO is successfully operating **3 IVC sites** and is preparing for its largest yet.

Kembla Grange Organics Recycling Facility (ORF)

Location	61 Reddalls Road, Kembla Grange NSW
Area	7,245m^2
Site License Capacity	70,000 tpa
Completed	Tunnels constructed in 2016
Resource Recovery Activities	Receipt, sorting, composting and transfer of garden, commercial food and wood wastes
IVC Infrastructure	Two in-vessel composting tunnels with 11,000 tpa capacity

Tweed Organics Processing Facility (OPF)

Location	298 Bartletts Road, Stotts Creek NSW
Area	9,500m^2
Site License Capacity	25,000 tpa
Completed	2021
Resource Recovery Activities	• Receipt, sorting and composting of garden and food wastes • Manufacturing, storage and distribution of compost and mulch products
IVC Infrastructure	Four in-vessel composting tunnels with 25,000 tpa capacity

Kembla Grange Compost Manufacturing Facility (CMF)

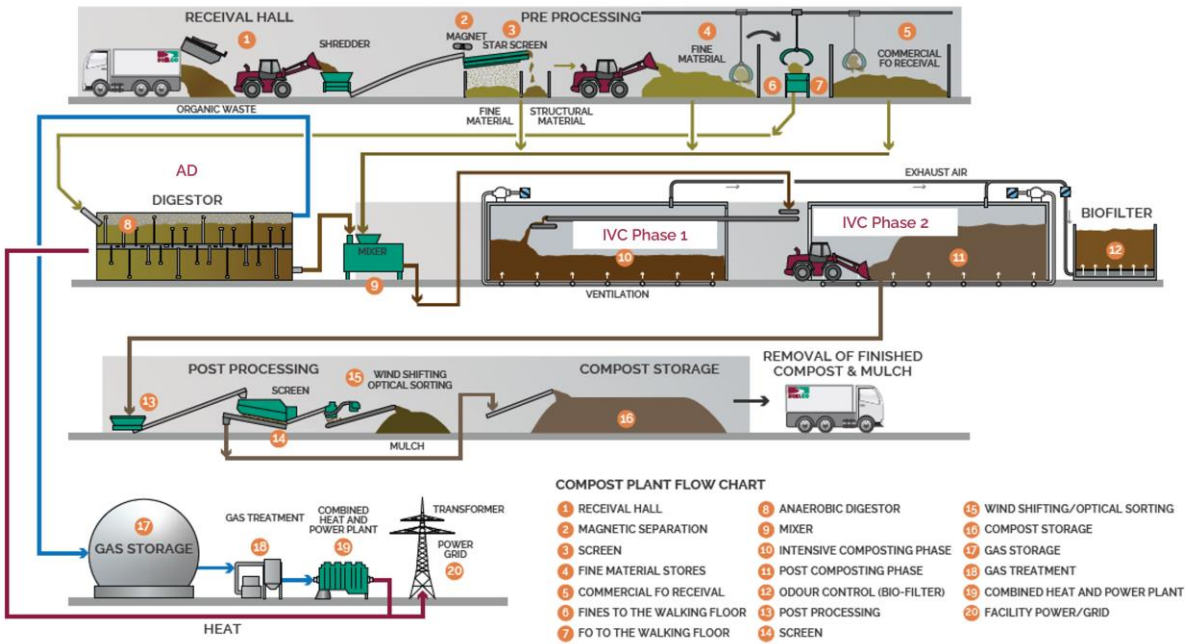
Location	24 Reddalls Road, Kembla Grange NSW
Area	18,150m^2
Site License Capacity	40,000 tpa
Completed	2022
Resource Recovery Activities	• Receipt, sorting and composting of garden, food and wood wastes • Receipt and processing of drilling mud • Processing, storage and distribution of soil, compost and mulch products • In-house laboratory
IVC Infrastructure	Four in-vessel composting tunnels with 32,000 tpa capacity

SOILCO’s In-Vessel Composting Journey: Looking Forward

Process Overview: In Vessel Composting and Anaerobic Digestion

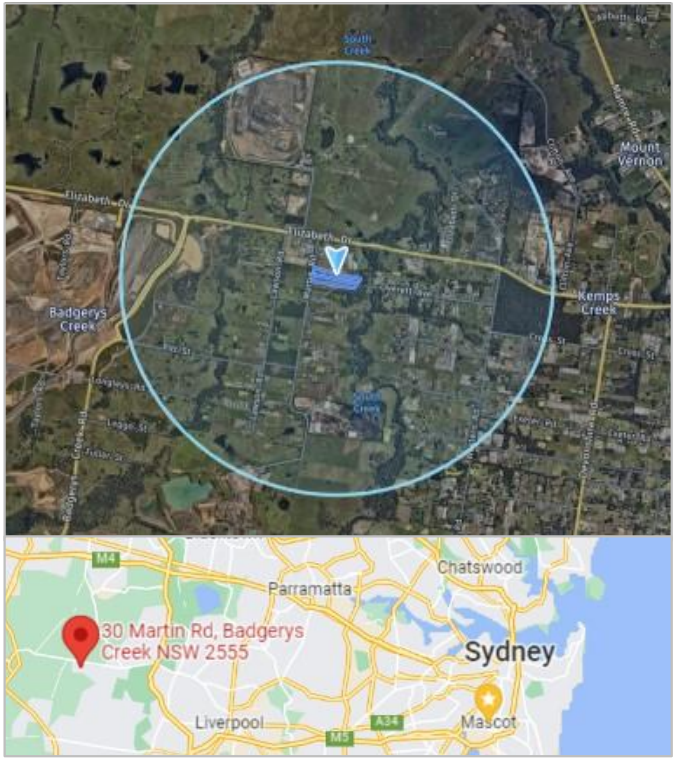
The future of IVC:

- Technology coupled with dry anaerobic digestion for large scale facilities (>100,000 tpa)
- Supported by complimentary sites that allow for product maturation and blending



SOILCO's Proposed Clean Energy Compost Manufacturing Facility

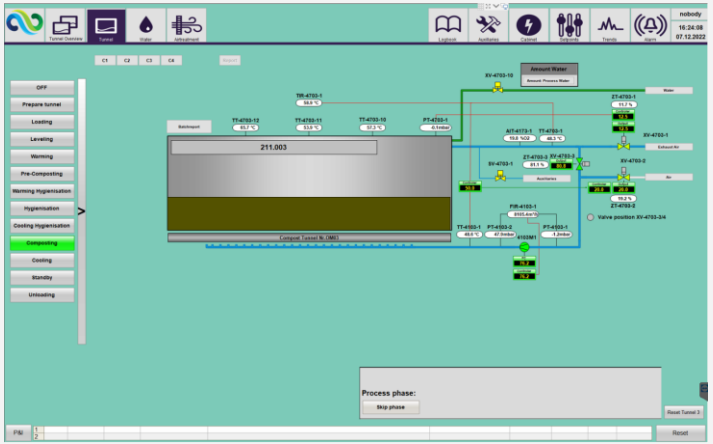
Location	30-40 Martin Road, Badgerys Creek NSW
Area	4.5 ha (within Western Sydney Aerotropolis)
Capacity	220,000 tpa
Zoning	ENT (Enterprise) / ENZ (Environment & Recreation)
Resource Recovery Activities	Garden, Timber, Food Waste (190,000 tpa) Sand & Soil (30,000 tpa): • Receipt, sorting and composting of garden, food and wood wastes using in-vessel composting technologies (16 tunnels) • Anaerobic digestion of food waste and associated electricity generation • Import of sands and soils to supplement composted products • Manufacturing, storage and distribution of soil, compost and mulch products
Proposed IVC Infrastructure	16 in-vessel composting tunnels with 120,000 tpa capacity

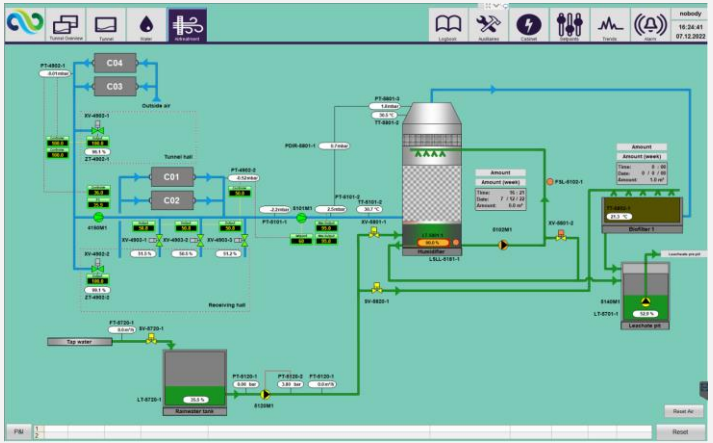


SOILCO’s In-Vessel Composting Journey: Lessons Learned

SCADA System and Data

- Key to optimising the composting process and improving environmental controls
- Balancing the trifecta:
  - Moisture
  - Air flow
  - Temperature
- Other considerations:
  - Bulk density
  - Time in tunnel



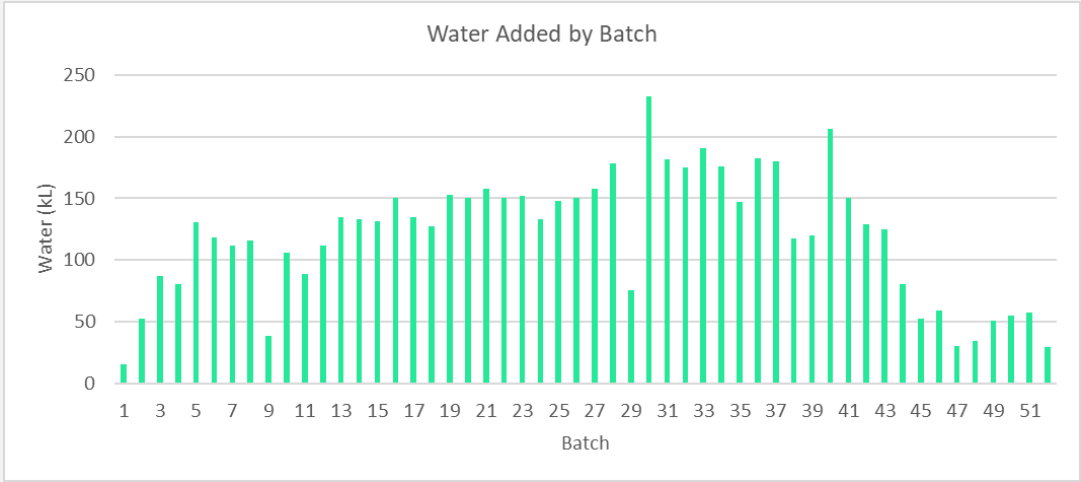


Product Considerations

- Tunnels typically generate young products that require further maturation
- Without additional land or a facility network, end-products must be sold into fit-for-purpose markets
- Products are typically more homogenous and consistent, which are preferred by many of SOILCO's long-term customers

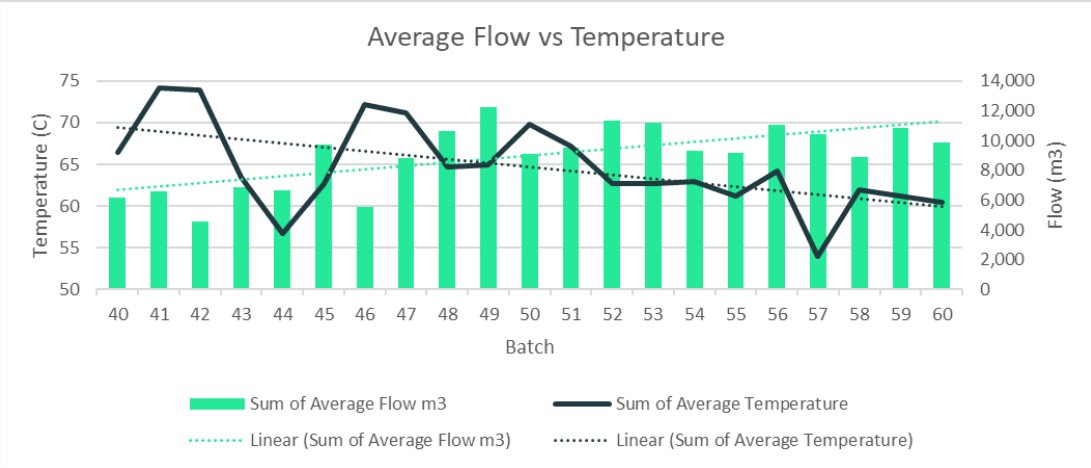
Moisture Control

- Mass loss through composting process: ~30%
- Water adjustments are required to optimise each batch
- Drought vs. wet period: 10-fold difference in water added



Temperature & Air Control

- Objectives:
  - Increase composting time before pasteurisation
  - Preserve biology by avoiding higher temperatures
- Smaller, lighter batches with less water added prior to pasteurisation improves airflow
- Improved air flow enhances efficiency in heating for pasteurisation and cooling after pasteurisation



Summary of SOILCO's IVC Experience

Benefits / Opportunities	Challenges / Lessons
• Lower OPEX • Greater throughput capacity on smaller footprints • Additional process controls to manage air, water and temperature • Product consistency • Reduced truck movements and greenhouse emissions transporting organics to regional facilities • Better environmental controls • Can be coupled with dry AD technology solutions at scale • Suited to FOGO and commercial FO	• Higher CAPEX, requiring long-term commitment from Councils and strong mandates from Government • Higher land costs and smaller lot sizes (given typical location of facilities) • IVC typically yields a young compost product that requires further maturation and post-processing • SCADA system requires continuous monitoring and adjustments to optimise each batch

Why it all matters…

Thank You

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Regenerating Australia Since 1985
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