



Hitachi Zosen
INOVA

The Power of Waste - San Luis Obispo AD Project

Executing a 36,500 TPY Food And Green Waste AD Facility
in California

Hitachi Zosen Corporation and Hitachi Zosen Inova



- | **Hitachi Zosen Corporation, Japan**, Revenue ~3.7 billion USD (3/16)
 - | 9,500 employees, 87 subsidiaries
 - | **Hitachi Zosen Inova AG based in Zurich, Switzerland (13 subsidiaries & locations)**
 - | Hitachi Zosen Inova USA, LLC – Norcross, GA & San Luis Obispo, CA

Hitachi Zosen Inova

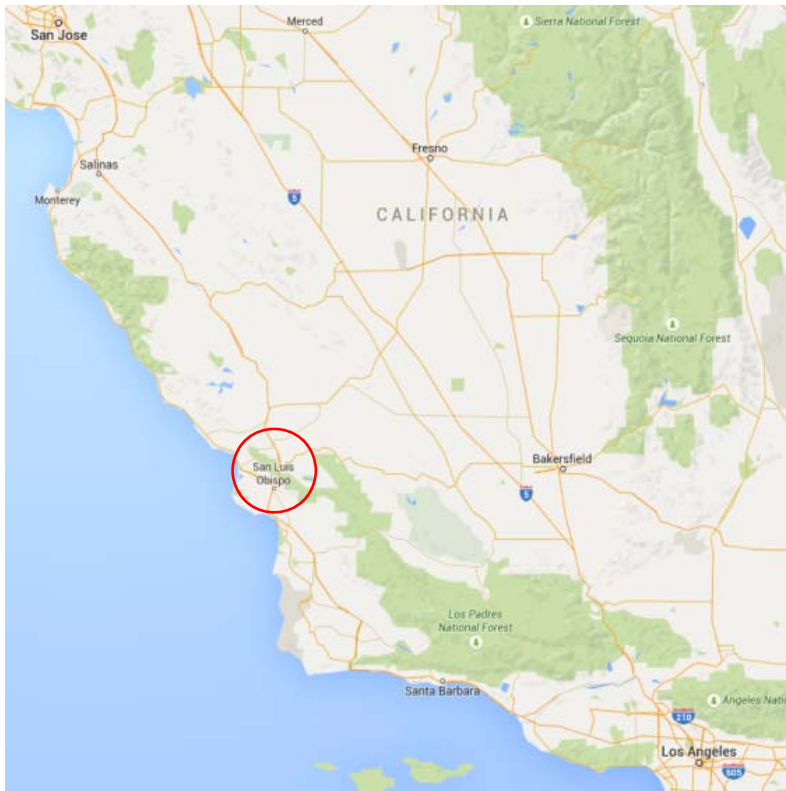
Global leader in Energy from Waste

Zurich-based Hitachi Zosen Inova is a global leader in energy and material from waste solutions (former Von Roll company founded in 1933)

- | More than 600 employees in Switzerland, Germany, USA and the UK
- | Offices in US since 1975
- | Global operation, maintenance & service businesses
- | Proprietary Energy from Waste (EfW) technologies
- | Complete EPC, turnkey plant and system solutions
- | Over 500 reference projects worldwide

- | Continuous expansion and development of EfW technologies
 - | 2014 Acquisition of Kompogas (Anaerobic Digestion)
 - | 2015 Acquisition of Biomethan GmbH (Biogas Upgrading)
 - | 2016 Acquisition of ETOGAS GmbH (Power to Gas)

Project Background



- In order to achieve 75 % organics diversion goal from landfills by 2025, AD infrastructure is needed (SB 1383)
- Alternative to AD is composting in neighboring counties with rising compliance requirements
- HZI' s appetite to develop a reference project to enter US market

Strategic Partners



Project Setup

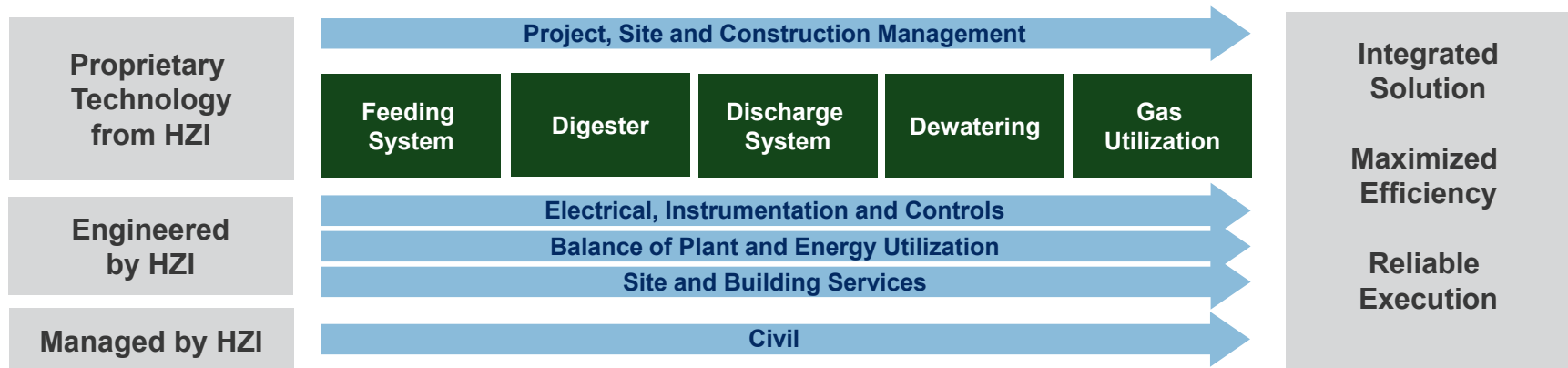
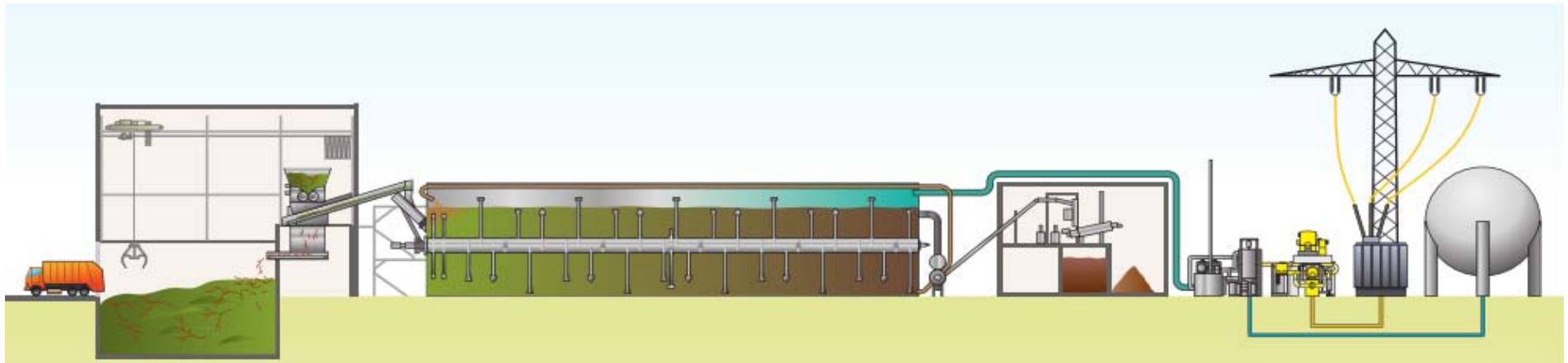
- SLO has 27,000 tons/year of yard waste (currently composted/ disposed) and want to include 6,000 to 8,000 tons/year food waste in the future
- Waste Connections (WC) provides disposal services for SLO
- WC owns a site with office, workshops and truck parking, ideal location for Anaerobic Digestion facility
- SLO waste disposal agreement with WC extended (20 years) based on AD investment
- WC not interested in 'technology projects' – look for third party to finance-design-build-own-operate the Plant

Key Data

Technology	<ul style="list-style-type: none"> • Kompogas HSAD System with CHP for power production
Project Type	<ul style="list-style-type: none"> • FDBOO (Finance, Design, Build, Own, Operate) • First Kompogas Reference Plant in US
Project Cost	<ul style="list-style-type: none"> • ~25 M\$ (incl. Project Development) with Power only concept • Financing through HZI and federal/state grants
Subsidy	<ul style="list-style-type: none"> • Grants: CalRecycle, CEC EPIC, CAEATFA) • ITC program (Investment Tax Credit)
EPC	<ul style="list-style-type: none"> • HZIU (expected project duration 15 months)
O&M	<ul style="list-style-type: none"> • Kompogas SLO LLC (duration 20 years)
Customer	<ul style="list-style-type: none"> • Waste Connection with its Subsidiaries
Feedstock	<ul style="list-style-type: none"> • 36,500 tons/year
Property	<ul style="list-style-type: none"> • Owned by WC Subsidiary – leased by Kompogas SLO LLC • Existing Building modified to fit overall plant concept
Compost & Liquid Digestate Sales	<ul style="list-style-type: none"> • Compost to be sold into local agricultural market • Liquid digestate as soil amendment for local farming

KOMPOGAS® - High Solids Plug Flow AD

First class technology combined with HZI turn-key capability



Financing

- | Fixed rate at 4%, 15 years maturity, 20% equity
- | CEC EPIC Grant – Successful application and awarded \$4MM. Project received highest scoring of all applicants. \$5.1MM in matching funds
- | CalRecycle GHG Grant – Successful Application and awarded \$4Mil. \$4.2 MM in matching funds
- | CAEFTA Program -- Successful award for the exemption of applicable sales taxes, value approximately \$800k.
- | Investment Tax Credit Program (ITC) with investment partner completed as of September 2018 – 30 % of eligible project cost qualifies for tax credit.

BioGas Conversion – RNG or Electricity

- | Renewable CNG originally planned for the facility
 - | Waste Connections trucks run on CNG
 - | Weekend storage to the gas pipeline
 - | Opportunity for stable pricing for hauler and benefits to local residents

- | Electricity generation
 - | Relatively low costs to interconnect
 - | Participation in the BioMAT Feed-in Tariff program
 - | Renewable source of electricity for the local community
 - | Participation in the Investment Tax Credit Program, max 30% of eligible project cost (ITC program expired in 2016)

BioGas Conversion – Electricity

- | PPA – Signed PPA with PG&E and participating in the BioMAT program, \$127.72/MWh

- | Biogas Utilization Concept for project changed from CNG to Power production
 - | Total Project cost approx. 25M\$
 - | O&M cost for Power concept approx. 1M\$/year
 - | HZI took advantage of the Investment Tax Credit, power generation required
 - | HZI choose the electricity over RNG due to the ITC options, however economically, CNG is the best option when RIN's and LCFS Credits are included

Permitting

- | Conditional Use Permit with Mitigated Negative Declaration was approved. CEQA also approved by Planning Commission, MND tiered off statewide Programmatic EIR. Project encountered some opposition to the facility, HZI actively engaged with residents to educate. No further challenges.
- | Building Permits all issued. Took longer than normal to educate local staff and California Code Check on this type of facility. CalFire visited plants in Europe to better understand safety aspect and fire suppression systems, now fully supports the technology.
- | APCD – Authority to Construct permit received by local APCD

Projected Milestones

- | Major construction completed July 2018
- | Hot commissioning – commenced August 2018 with inoculation of digester
- | First feeding late September 2018
- | Facility expected fully on line by Mid November 2018.



Thank you!

