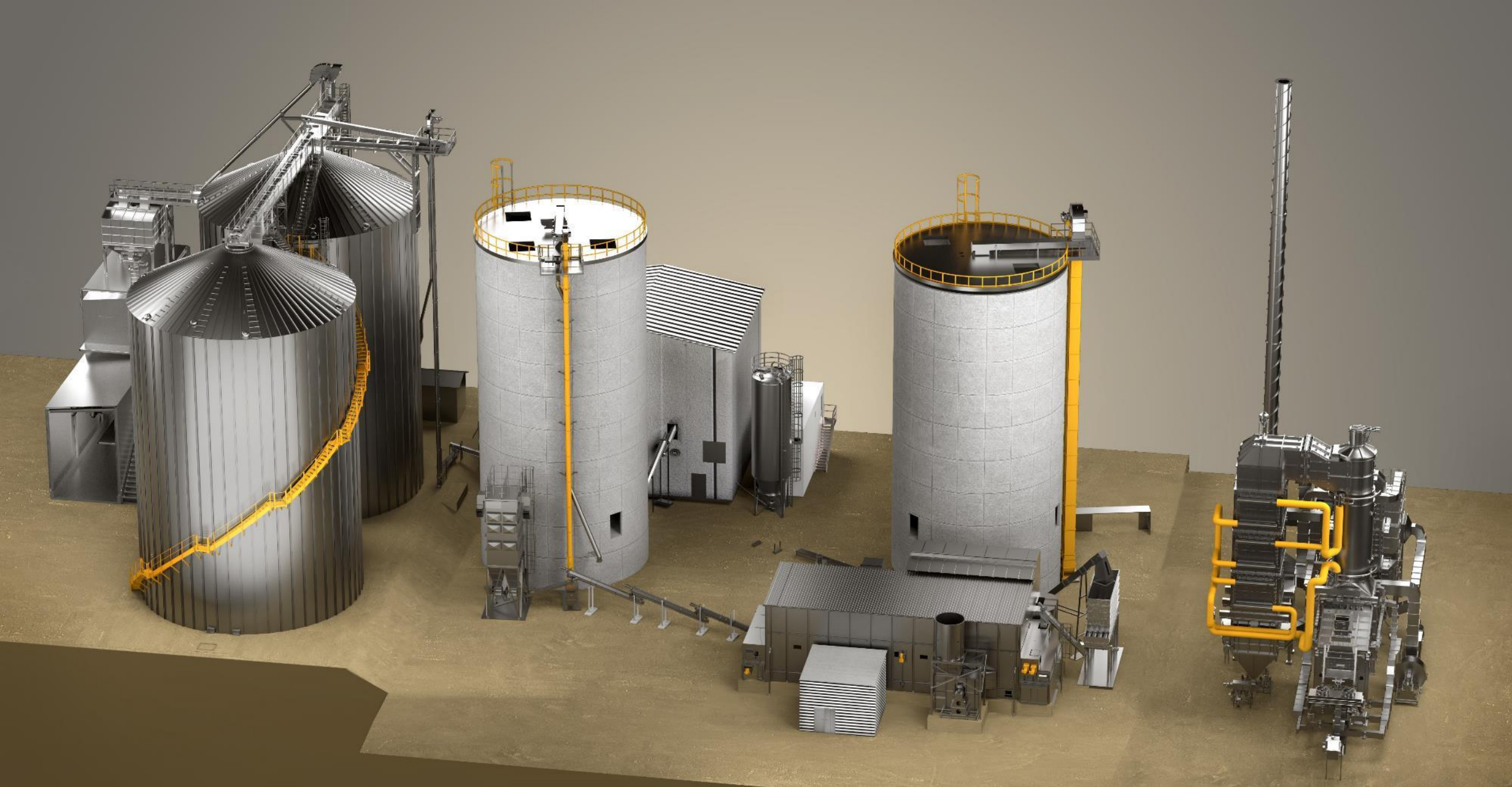


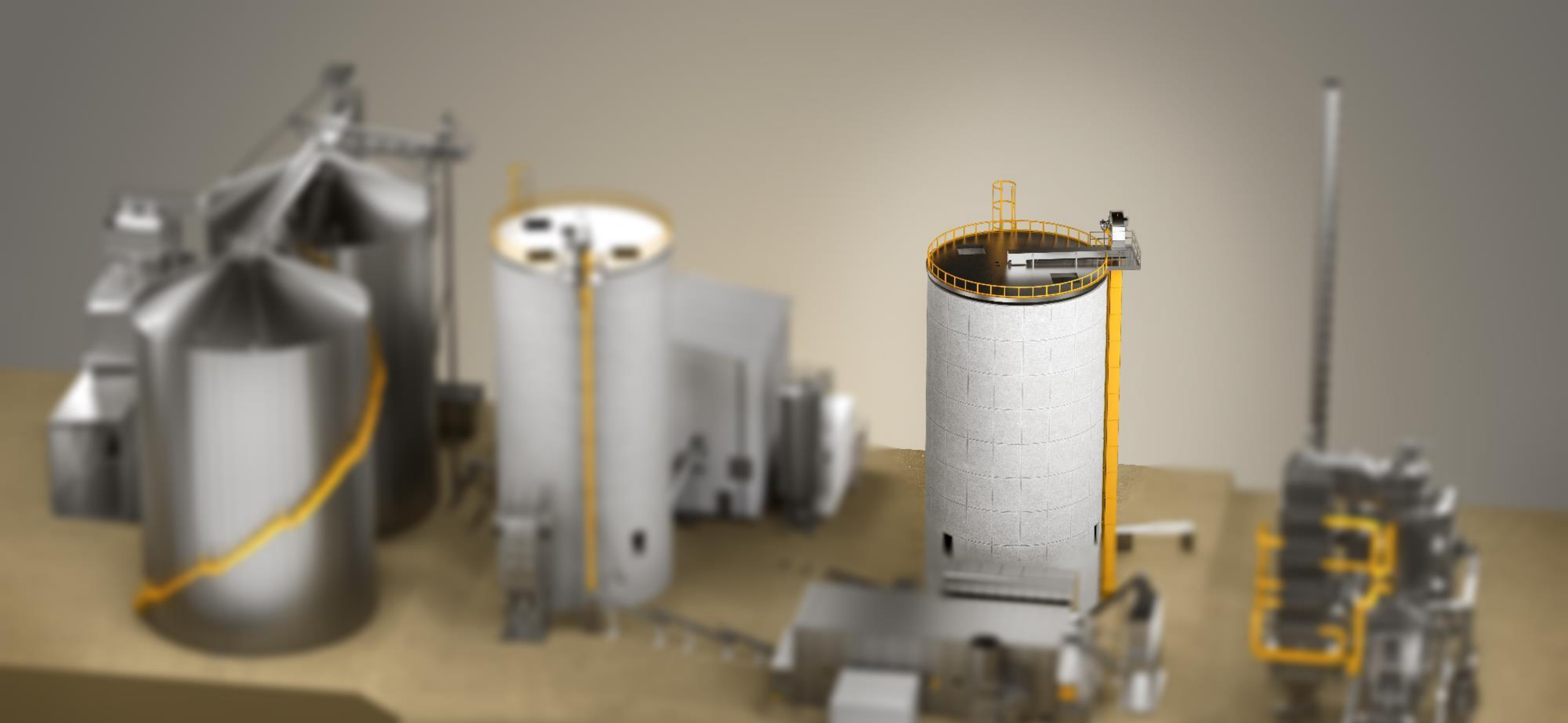
Optimizing Efficiency - Integrated Pellet Plant

WPAC AGM & Conference | Victoria, BC
September 17-18, 2024

Timo Müller | SALMATEC
Matthias Strauch | INTEC
Yves Marc Schade | STELA





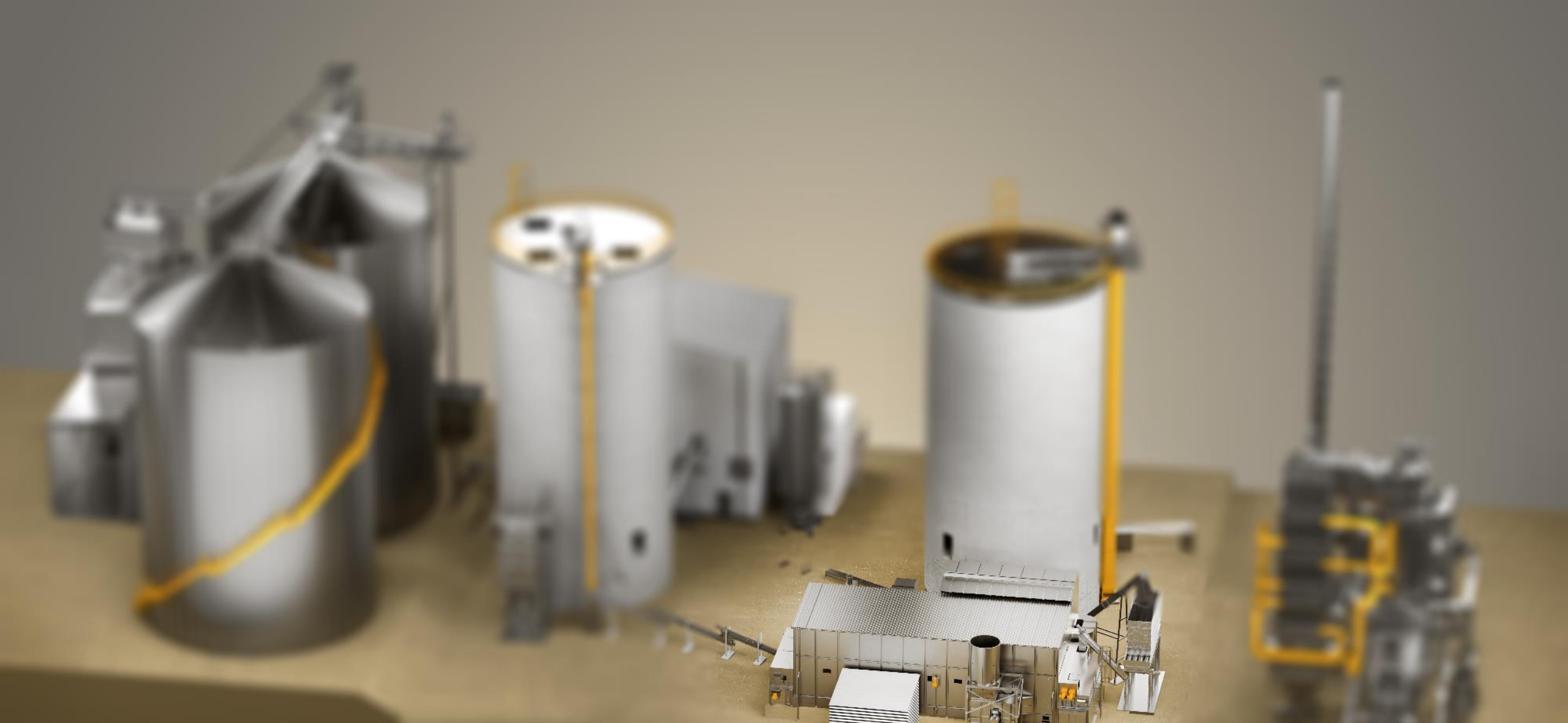


GREEN SILO & GREEN MILLING

GREEN MILL SCREENING

- Green Mill / Wet Mill to optimize dryer
- Screening material before entering the mill
- ∅ 30 kW/h saved





BELT DRYER

BELT DRYER's unique selling points

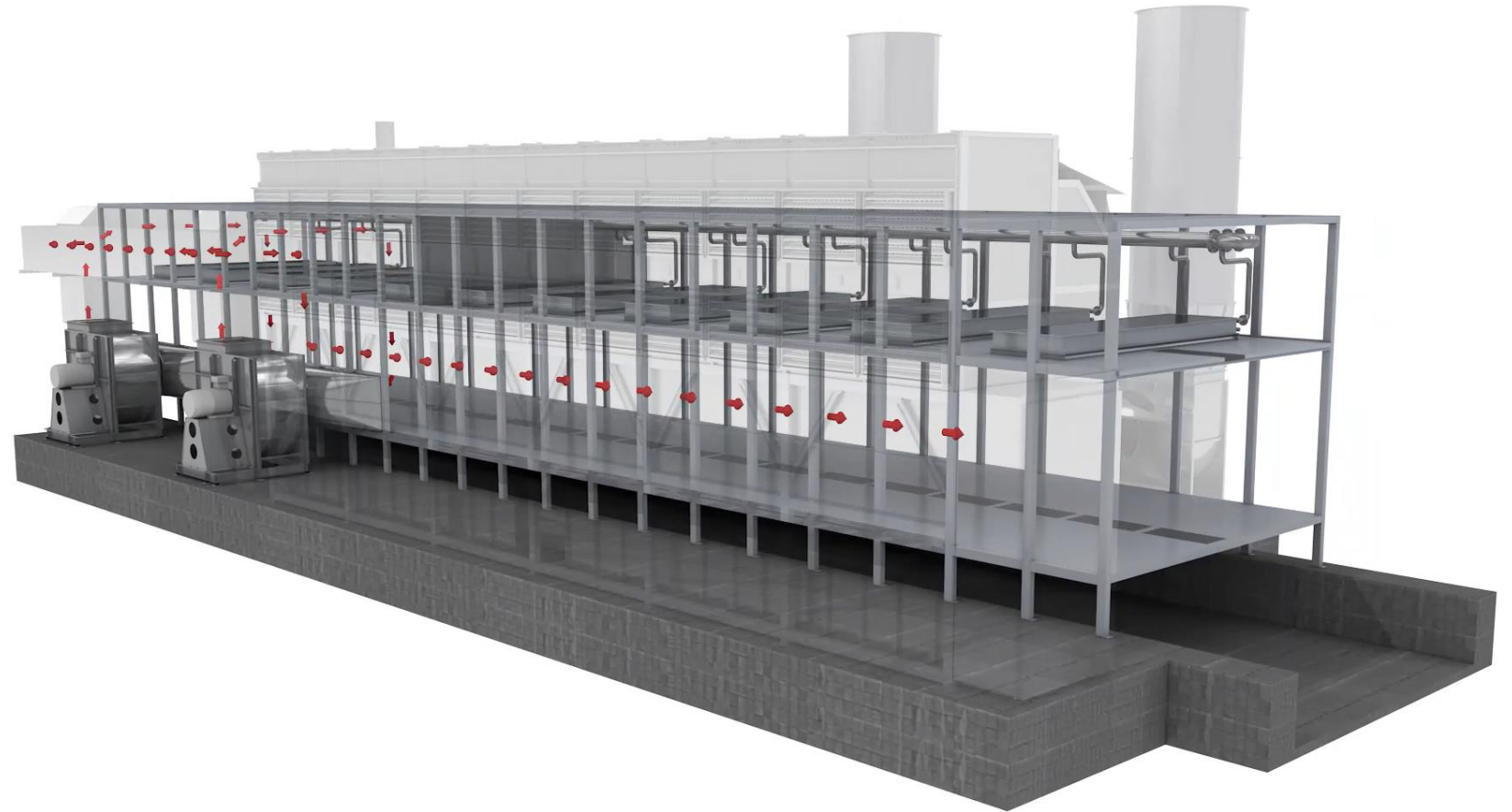
Technical advantages of the belt dryer	
"...low dryer inlet temperature 120°C...!"	<ul style="list-style-type: none"> ✓ indirect heated by excess heat ✓ Low temperatures prevents dust explosions and fire risk
"...less electrical power needed...!"	<ul style="list-style-type: none"> ✓ Belt Dryer's approx. 25 kWh/to H₂O ✓ high redundancy level using individual vents
"...lower thermal energy needed...!"	<ul style="list-style-type: none"> ✓ RecuDry® System condensating exhaust stream ✓ Belt Dryer's approx. 0,7 kWh/kgH₂O
"...retention time is reaction time...!"	<ul style="list-style-type: none"> ✓ Belt Dryer's typical 6 – 30min
"...unconcerned material handling...!"	<ul style="list-style-type: none"> ✓ homogenous product layer over all process
"...even final moisture...!"	<ul style="list-style-type: none"> ✓ Easy control moisture content by variable belt speed
"...CAPEX...!"	<ul style="list-style-type: none"> ✓ NO exhaust gas cleaning ✓ NO WESP filter ✓ Easy foundation's

BELT DRYER's emission

- No „Blue Haze“, due to low exhaust gas temperatures
- Mild process air temperatures, lowering concentration and changing composition of pollutants
- High saturation of exhaust, energy excess by condensation



STATE OF THE ART - RecuDry®



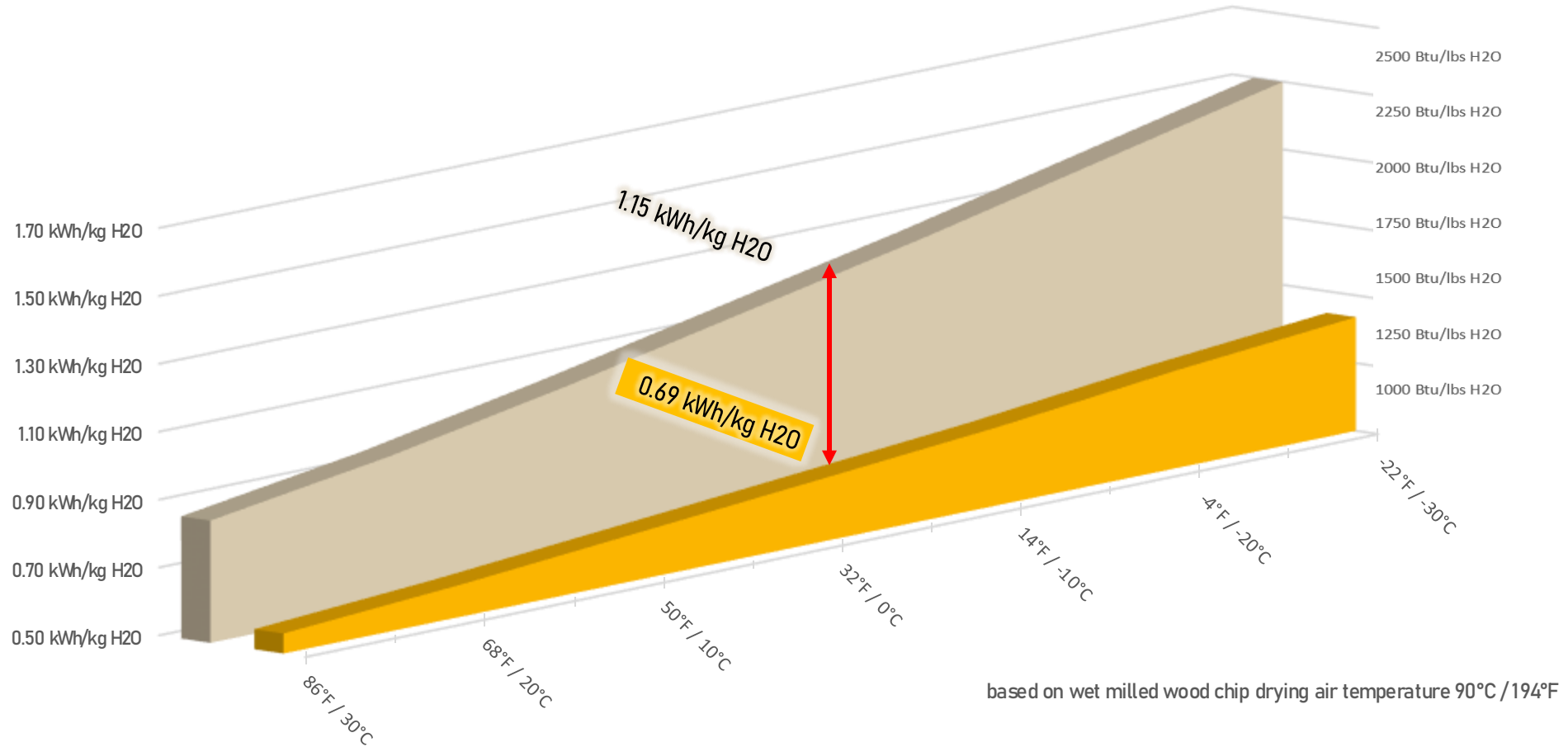
HIGHEST EFFICIENCY

ENERGY RECOVERY BY
CONDENSATION

SIGNIFICANT REDUCED EXHAUST
AIR FLOWS

COMPENSATING SUMMER /WINTER
HEAT DEMAND

SPECIFIC ENERGY CONSUMPTION “SINGLE-PASS” VS. “EXHAUST CONDENSATION”





DRY MATERIAL SILO

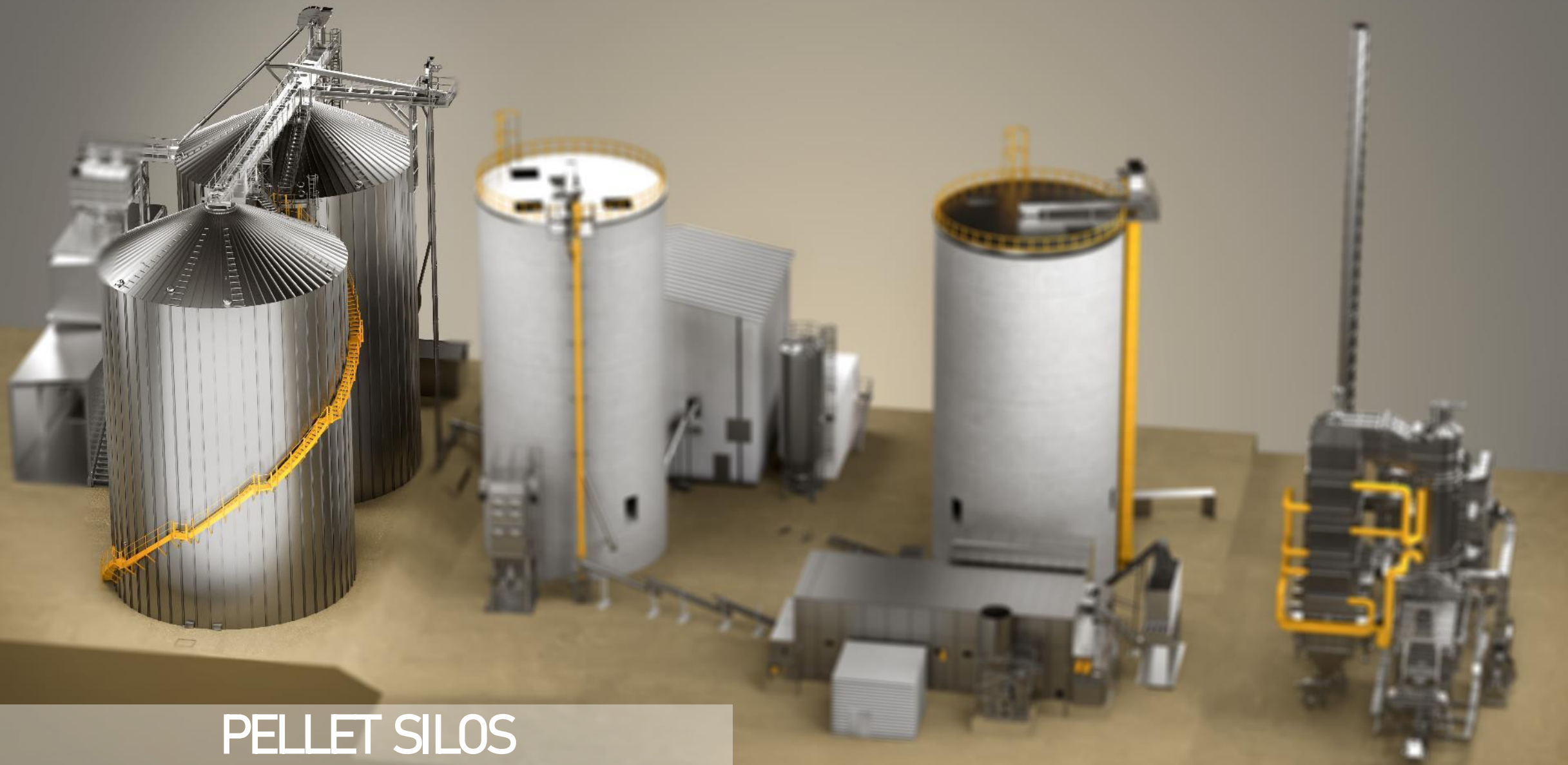


PELLETING UNIT

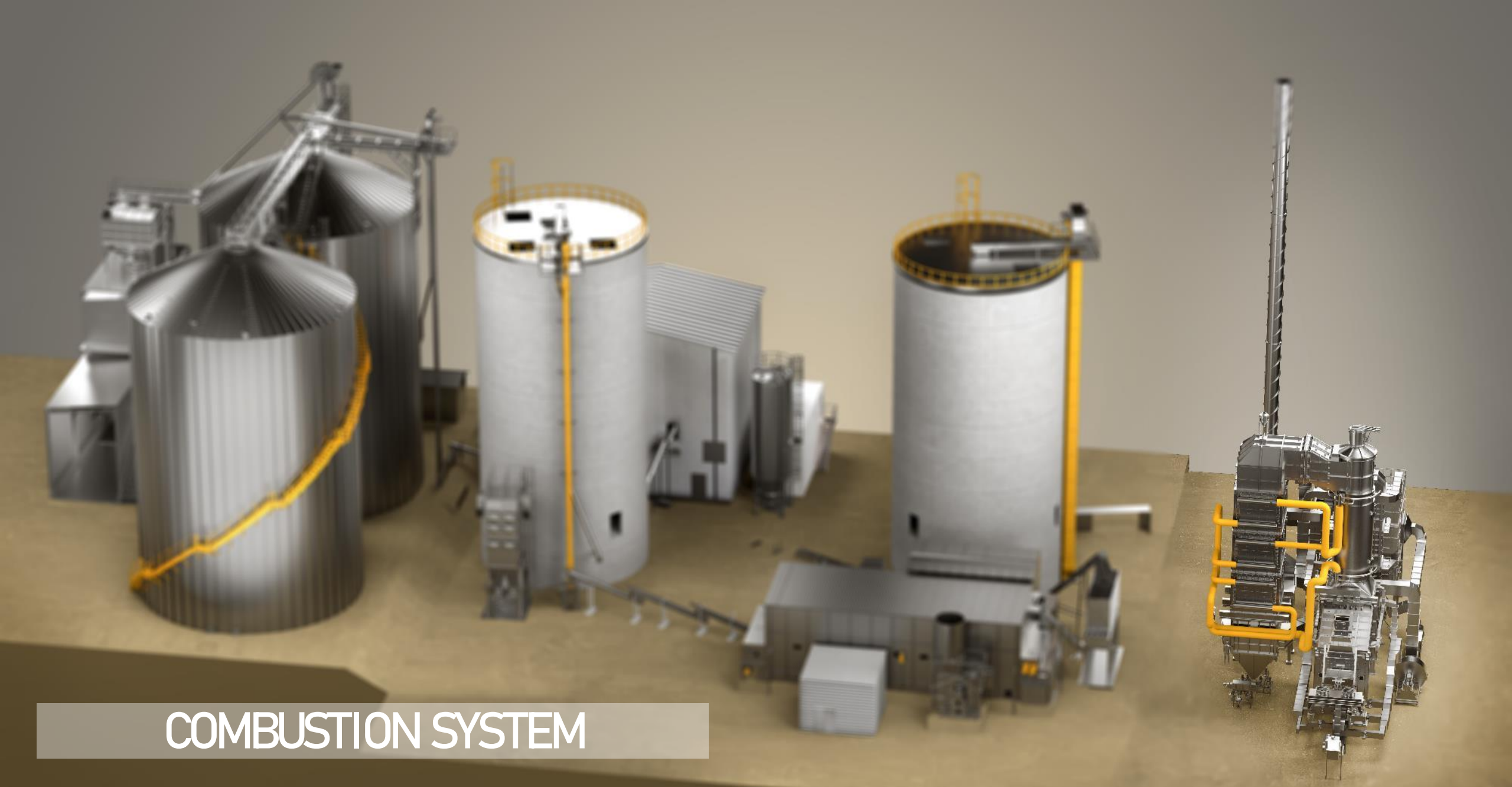
PELLETING UNIT

- Hammer Mill
- Conditioner
- Ripening Bin
- Dosing Conditioner
- Pellet Mill
- Screening Cooler





PELLET SILOS

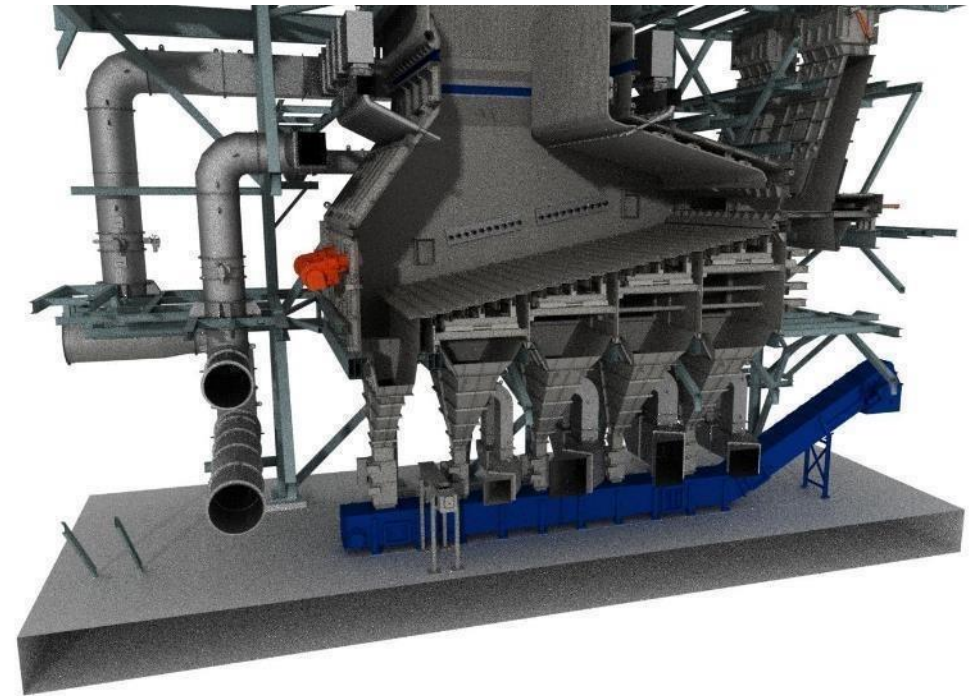


COMBUSTION SYSTEM

COMBUSTION SYSTEM - INTEC VRCS®

STEP GRATE COMBUSTION SYSTEM:

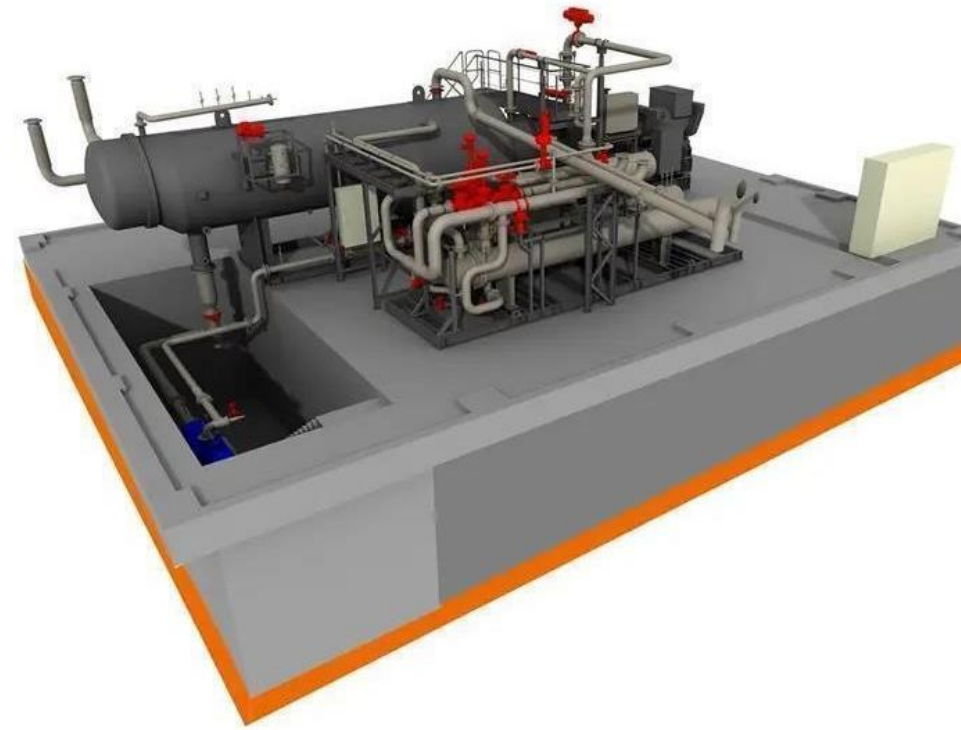
- Highly customized on fuel and local requirement
- Lowest emissions
- Ideal for remote locations due to high automation grate and low operator requirements
- Highest reliability - Guaranteed uptime of 8000 h/a
- Full flexibility for heat distribution



THERMAL OIL SYSTEM WITH ORC

THERMAL OIL SYSTEM WITH POWER GENERATION VIA “ORGANIC RANKING CYCLE”

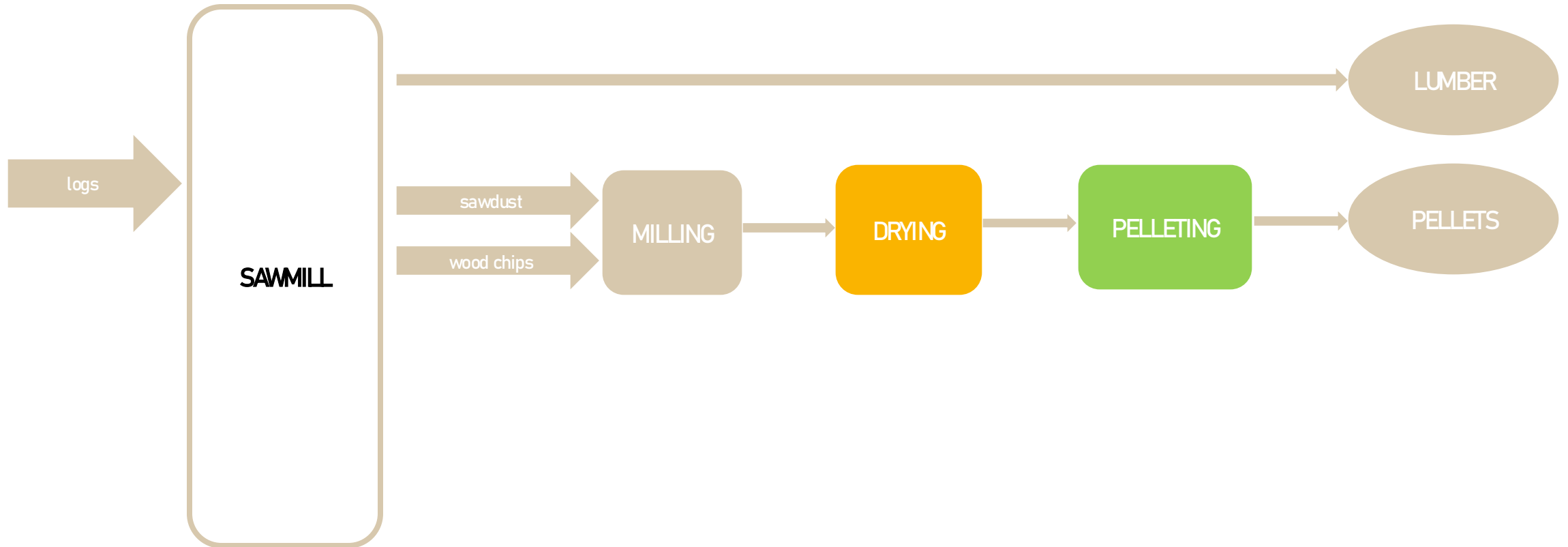
- Low OPEX – no 3rd class steam engineer needed
- Almost 100% efficiency due to low temperature heat demand of the Pellet dryer
- Flexible use of heat
 - Thermal oil to sawmill
 - Hot water to sawmill or district heating
- Ideal for remote locations
- High grade of automation 24/7
- low operator skill requirements



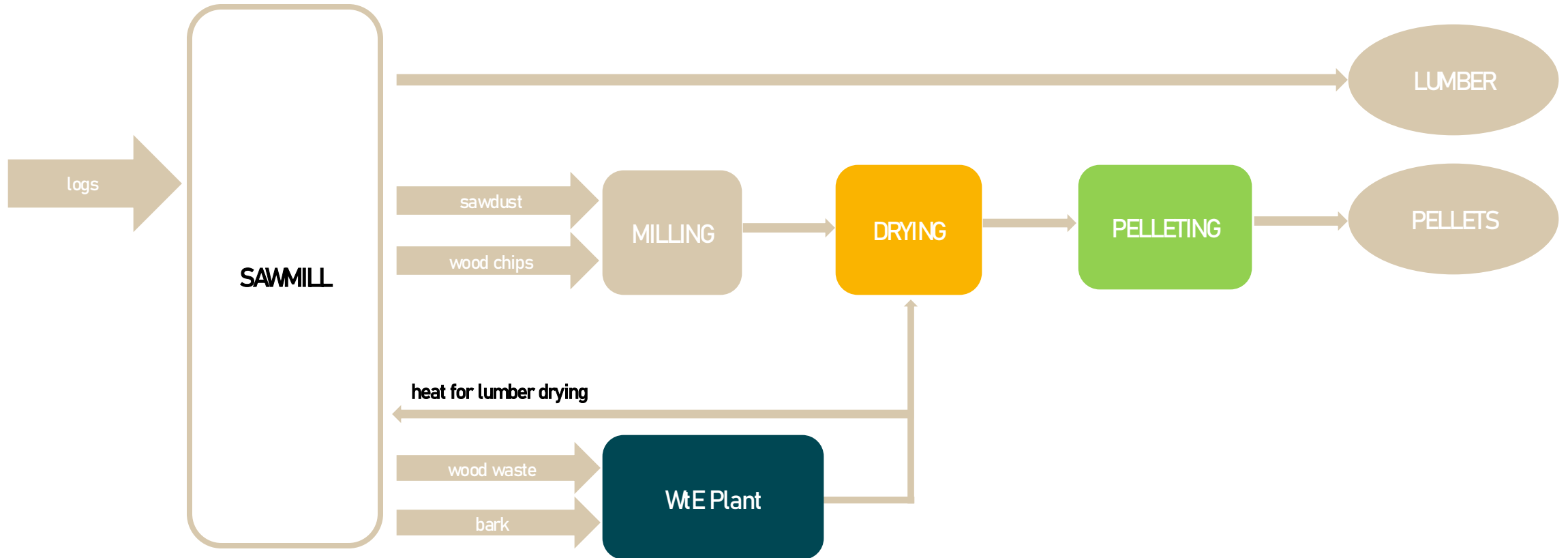
CASE STUDY – 15 TPH PELLET PLANT



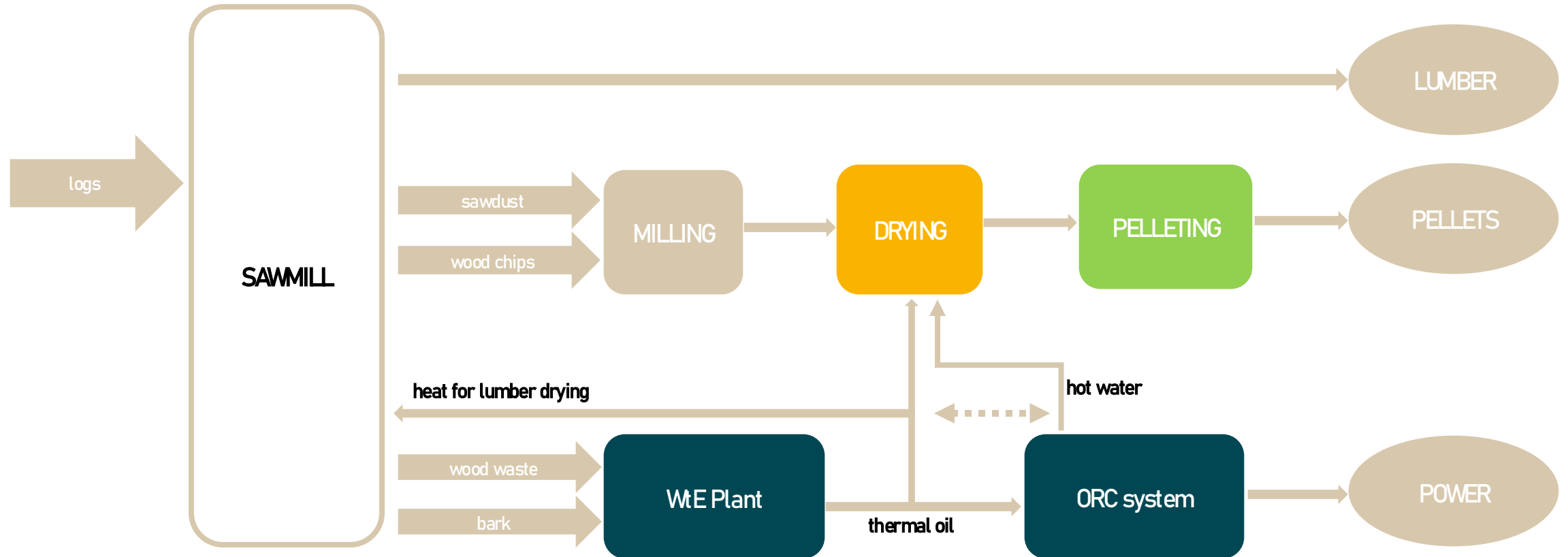
CASE STUDY - 15 TPH PELLET PLANT



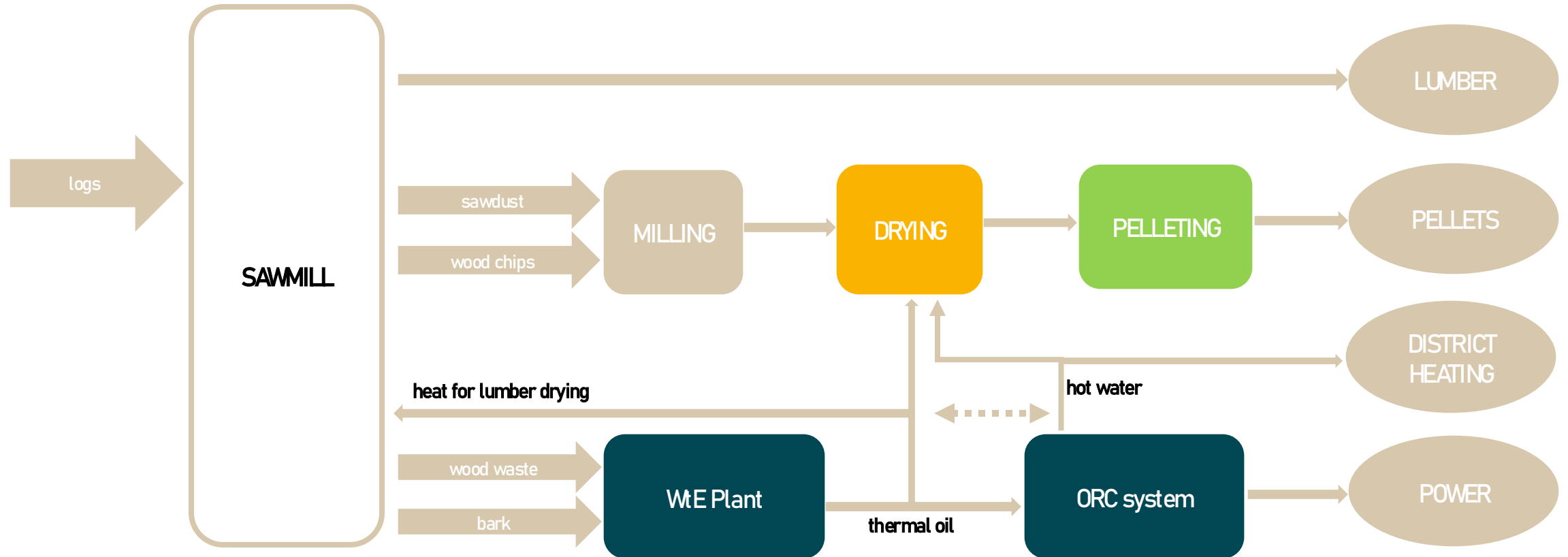
CASE STUDY - 15 TPH PELLET PLANT



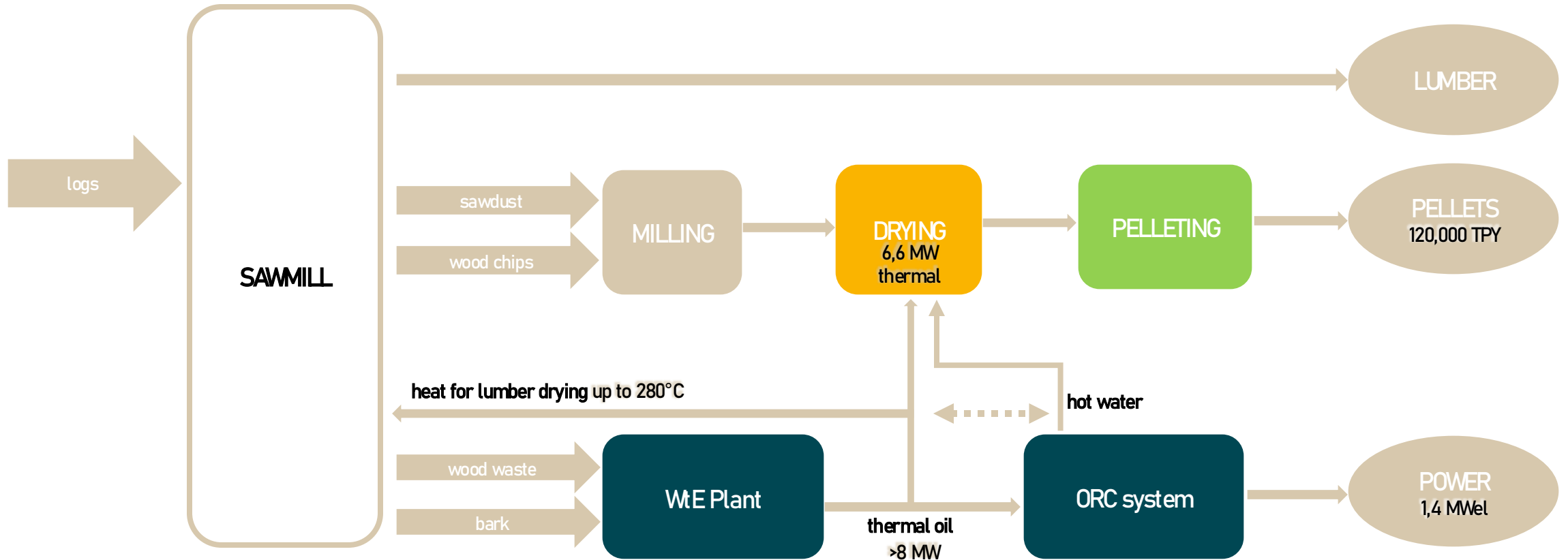
CASE STUDY - 15 TPH PELLET PLANT



CASE STUDY – 15 TPH PELLET PLANT



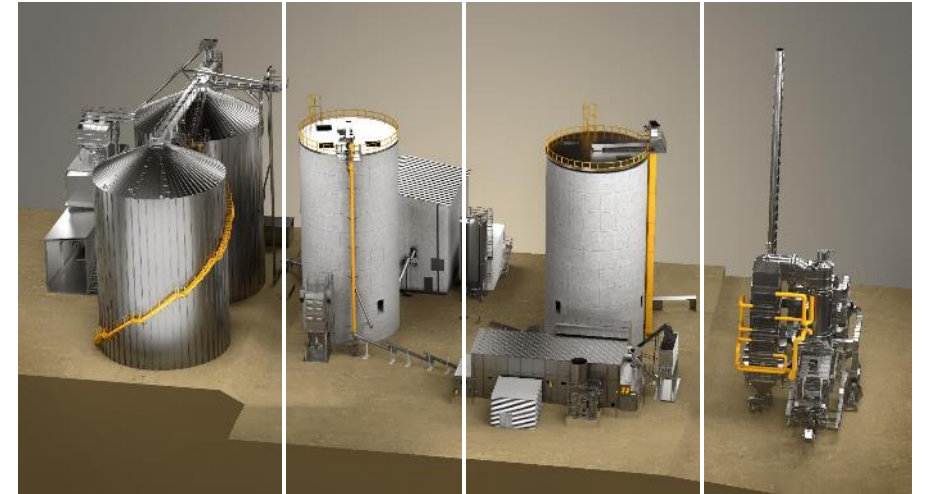
CASE STUDY – 15 TPH PELLET PLANT



WHY INTEGRATED PELLET PLANT?

BENEFITS OF INTEGRATION OF PELLETING AND POWER GENERATION

- Maximum operational efficiency by combination of processes
- Synergies due to utilization of resources
- Raw materials usage
- Workers Qualification
- Almost every waste stream can be valued
- Diversification of sawmills



Thank you for your attention!

