



Wood Chip Co-Generation





**Stéphane Laurin, P.Eng.**

**Sales Representative, Energy Systems**

- With Wellons Canada since 2022
- 35+ Years, Energy Projects Experience

## **OVERVIEW**

**Introduction**

**Cogeneration with ORC Schematic**

**In's and Out's of Heat Source**

**System Configurations**

**Application & Customers**

**Wellons Group Info**



## Biomass Energy Systems

- ▶ Thermal energy plant
- ▶ Electrical power generation
- ▶ Cogeneration plant



## Timber Drying Systems

- ▶ Continuous
- ▶ Batch
- ▶ Package loaded



## Fuel Storage Systems

- ▶ Silos
- ▶ Live floor bunkers
- ▶ Conveyors



## Electrostatic Precipitators

- ▶ Dry Type





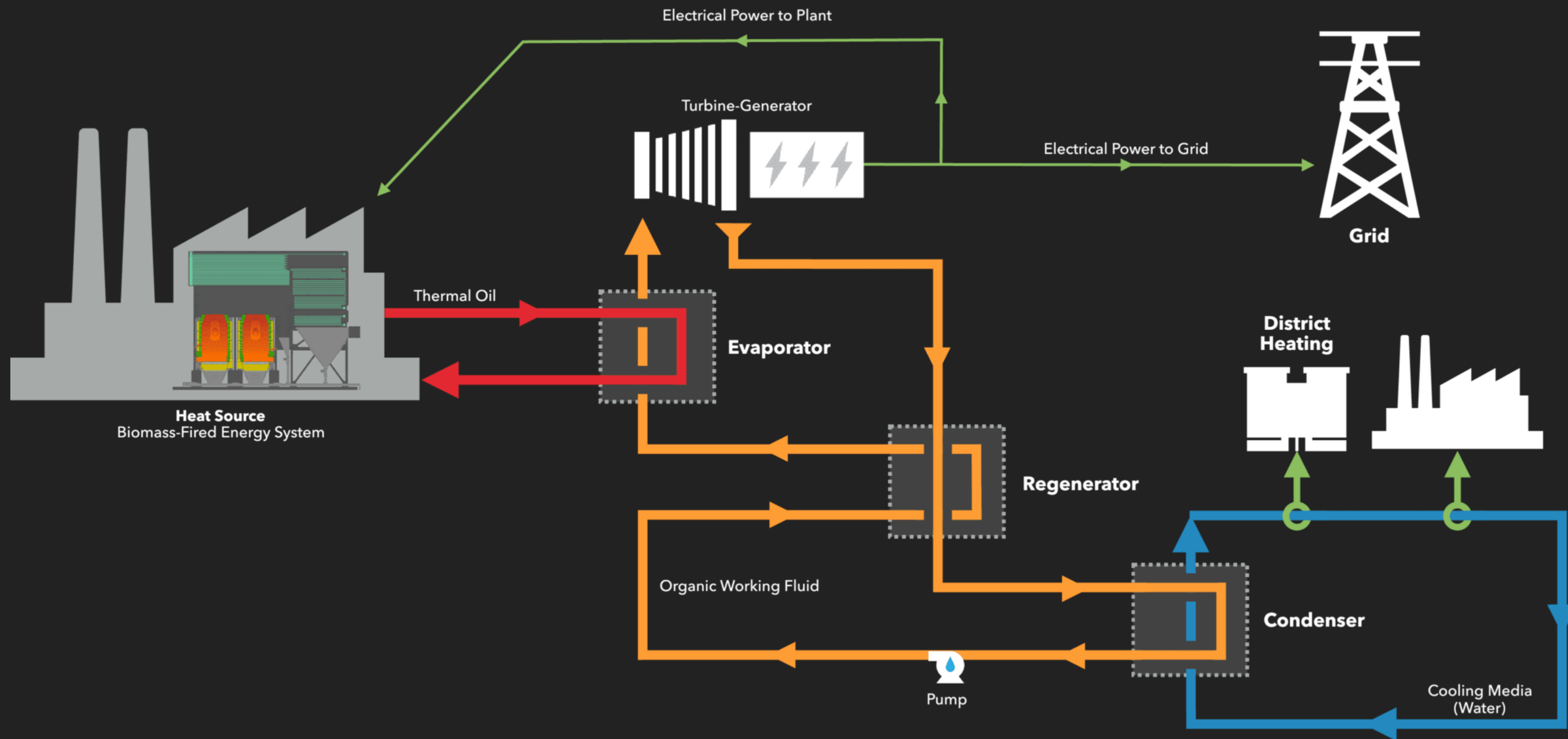
Société en Commandite  
**ONIMISKIW OPITCIWAN**

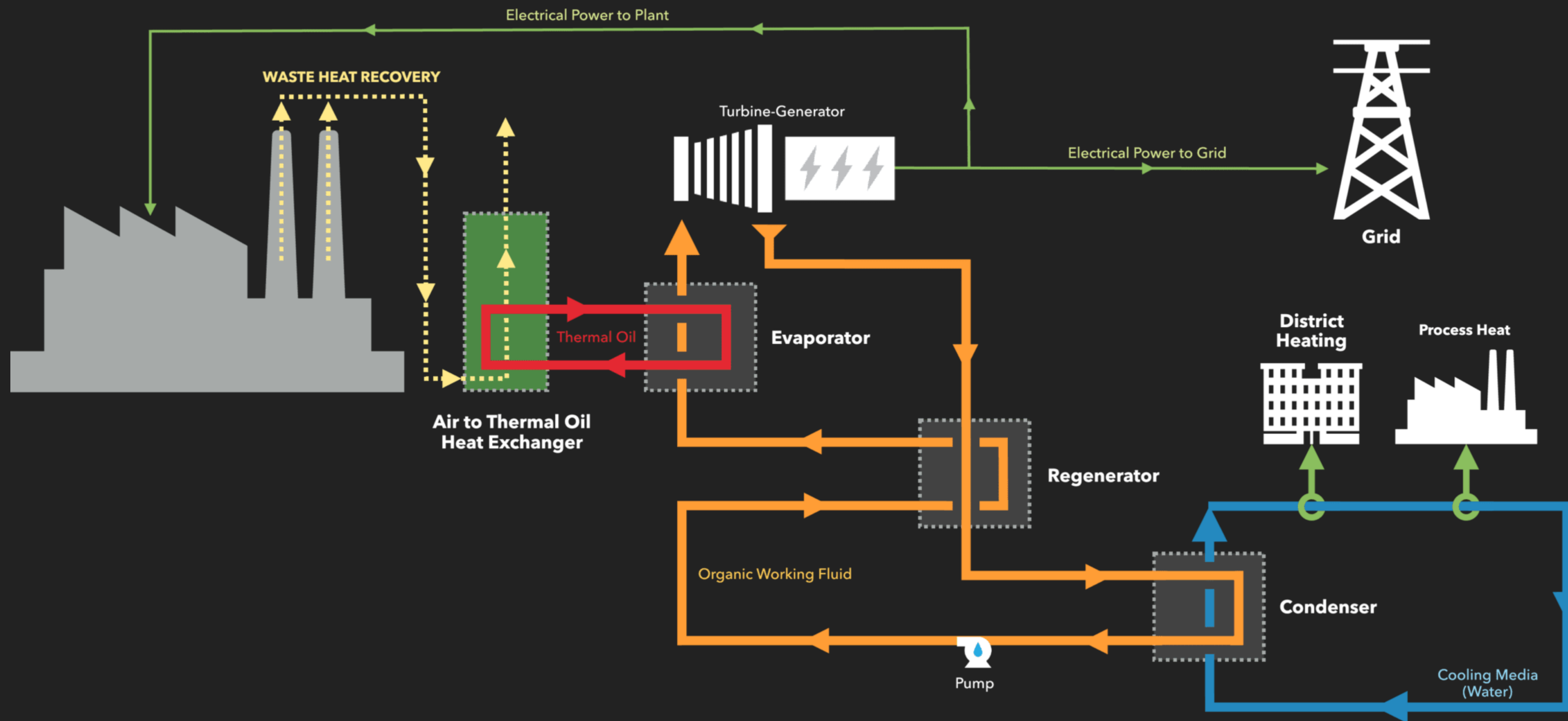
**PRESS RELEASE  
FOR IMMEDIATE RELEASE**

**THE SCOO COMES TO AN AGREEMENT WITH WELLONS CANADA FOR THE  
PURCHASE AND INSTALLATION OF HEATERS FOR THE COGENERATION PLANT**

**Remote Community on Micro-Grid using large Diesel Gensets (lot of GHG's)**

**SIZING: 24 MWt Biomass / 4,8 MWt Electric Power / 3,5 MWt Industrial Process**



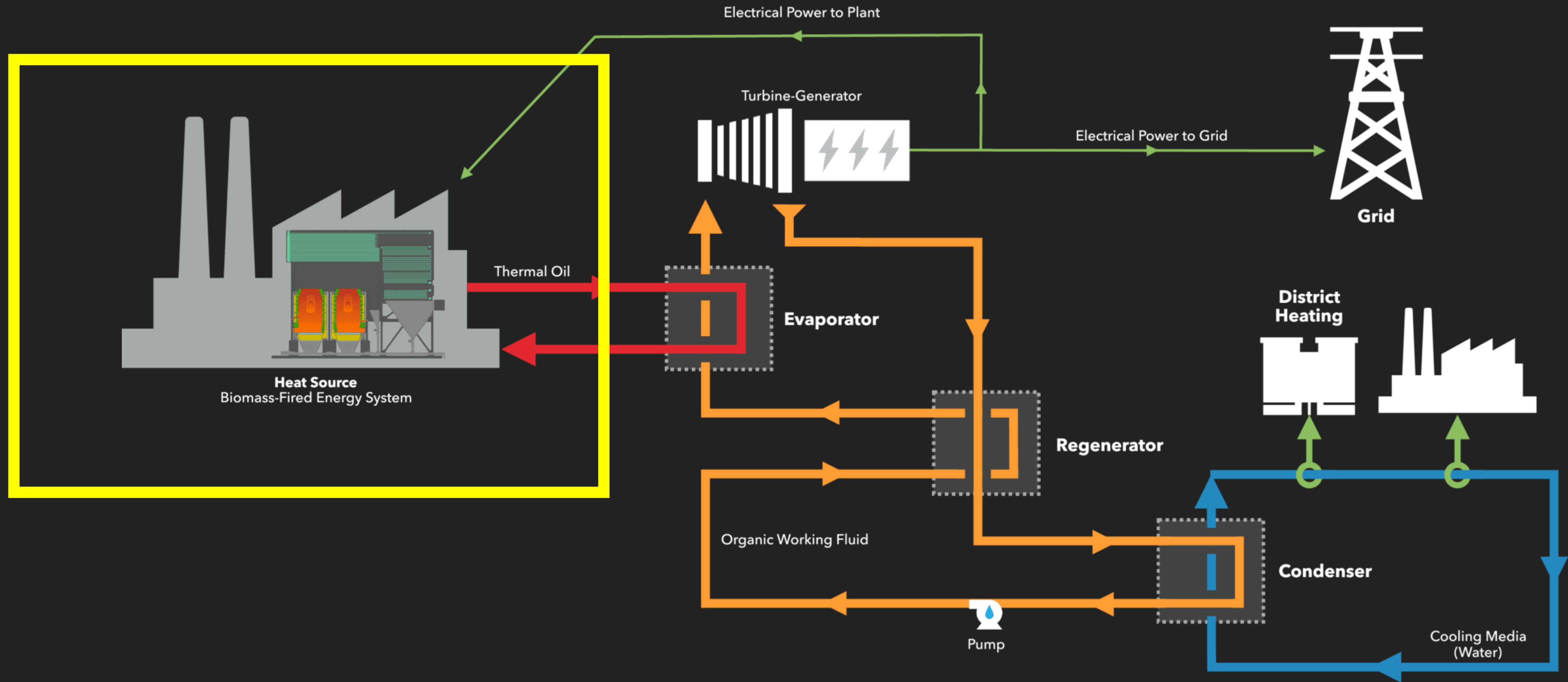


## BENEFITS:

- ▶ Simpler than Steam Cycle (No Water)
- ▶ Lower Power Engineers Requirements
- ▶ Heat for Industrial Process (Low Temp)

Key For Success:

KEEP IT SIMPLE STUPID (KISS)

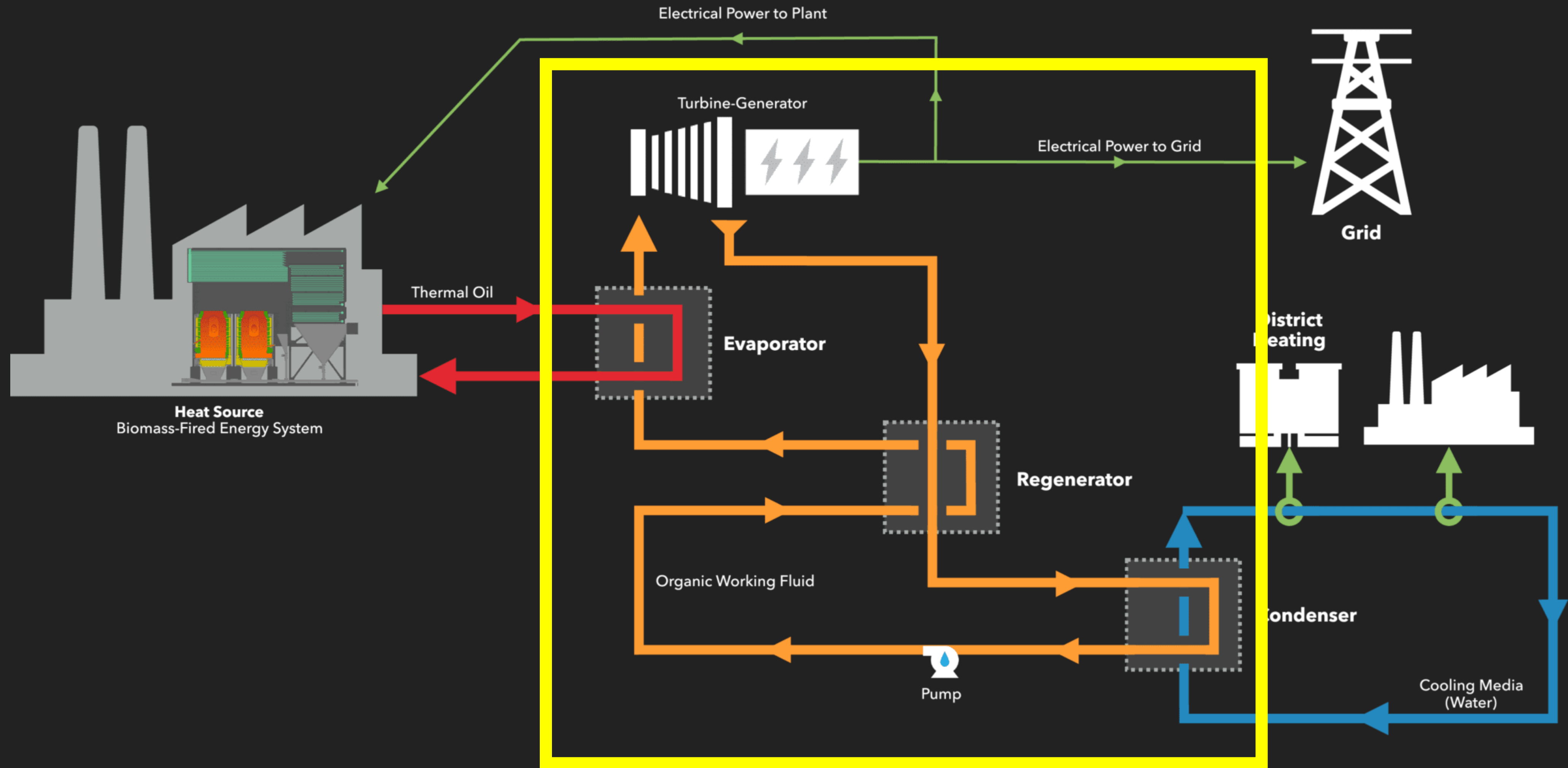


## MATERIAL FEED (IN'S)

- ▶ Wood Chips
- ▶ Hogged Bark
- ▶ Other forest residuals
- ▶ Dry vs Wet Fuels for Design

## HEATER APPLICATION (OUT'S)

- ▶ Thermal Oil (large ORC)
  - Therminol or other fluid
  - 590 degF / 310 degC
- ▶ Hot Water (small ORC)
  - Water, Glycol or other fluid
  - 250 degF / 120 degC

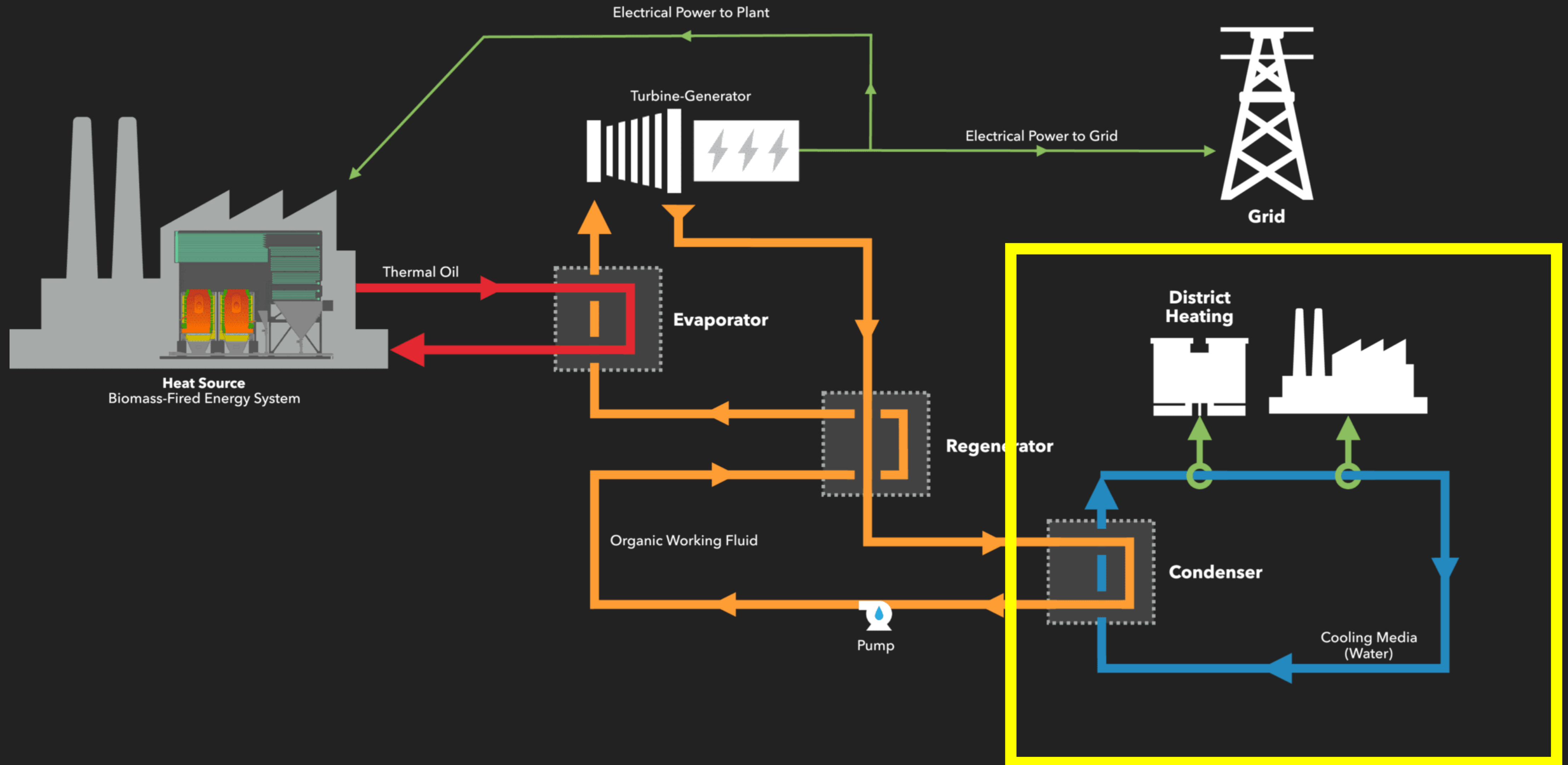


## LARGE UNITS

- ▶ Capacity: 2 MWe up to 25 MWe
- ▶ High Temp Design (Thermal Oil)
- ▶ Waste Heat Available for Cogen
- ▶ Manufacturer Options

## SMALL UNITS

- ▶ Capacity: 75 kWe to 150 kWe
- ▶ Low Temp Design (Hot Water)
- ▶ With or Without Cogen Option
- ▶ Manufacturer Options
- ▶ Modular + +



## **CONSUMERS:**

- ▶ **District Energy (Water, Glycol or other Fluid)**
- ▶ **Greenhouse Heating**
- ▶ **Heat for Industrial Process (Low Temp)**



# WELLONS

THANK YOU

Stéphane Laurin, P.Eng.

Cell: (450) 575-0678

[stephane.laurin@wellons.ca](mailto:stephane.laurin@wellons.ca)



Arctic Energy  
Alliance



**Wellons, Inc.**

Corporate Headquarters, Vancouver WA

- 1964** Wellons Founded
- 1987** Partnership With Salton, Ltd.
- 1990** Acquisition of Wellons FEI (Quebec)
- 2000** Construction of Wellons Energy Solutions Plants
- 2001** Opened Engineering Office in Russia
- 2002** Acquisition of Rogue Pro Industries (RPI)
- 2003** Salton Becomes Wellons Canada
- 2008** Acquisition of Salem Equipment
- 2016** Acquisition of Macro Manufacturing
- 2016** Formation of the Wellons Power Group
- 2020** Opened Australasia in New Zealand

## ▶ Continuous operation since 1964

## ▶ Total employees 300+

## ▶ Sales and Engineering offices

- Vancouver, WA, USA
- Sherwood, OR, USA
- Surrey, BC, Canada
- Atlanta, GA, USA
- Ste-Julie, QC, Canada
- Te Horo, New Zealand

## ▶ Project Services

- Project planning & initial design
- Engineering & final design
- Manufacturing & procurement
- Mechanical installation
- Electrical installation
- Technical assistance
- Training
- Service and maintenance
- Replacement parts

## ▶ Acquisitions

- Salton Fabrication (Wellons Canada)
- Energie FEI (Wellons Canada)
- Salem Equipment, Inc.
- Rogue Pro (Wellons RPI)
- McBurney Personnel (Wellons Power Group)
- Séchoir MEC (Wellons Canada)





**Wellons**

Corporate Headquarters, Vancouver WA, USA



**Wellons Canada**

Canadian Headquarters, Surrey, BC Canada



**Wellons Canada**  
Sainte-Julie, QC



**Séchoir MEC**  
Victoriaville, QC

**Wellons Canada**  
Surrey, BC  
Biomass & Gas Fired Thermal Energy  
Systems and Drying Systems

**Wellons Canada**  
Sainte-Julie, QC  
Biomass & Gas Energy Systems

**Séchoir MEC**  
Victoriaville, QC  
Drying Systems

**Salem Equipment, Inc.**  
Sherwood, OR  
Supplier of Sawmill Equipment

**Wellons RPI**  
Grants Pass, OR  
Refractory Installation Specialists  
and Mechanical Repairs

**Wellons Energy Solutions**  
High Point, NC  
Biomass Steam & Co-Gen Projects  
(Build, Own & Operate)

**Wellons Sales Office**  
Pittsburg, PA and Columbia, SC

**Wellons Power Group**  
Atlanta, GA  
Biomass Energy Systems

**Australasia**  
Te Horo, New Zealand  
Sales & Engineering





Vancouver, WA



Surrey, BC

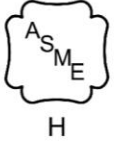


Sherwood, OR



Grants Pass, OR

**CERTIFICATE OF AUTHORIZATION**



The named company (ASME) for the scope of activity shown below in accordance with the applicable rules of the ASME Boiler and Pressure Vessel Code. The use of the ASME Certification Mark and the authority granted by this Certificate of Authorization are subject to the provisions of the agreement set forth in the application. Any construction stamped with the ASME Certification Mark shall have been built strictly in accordance with the provisions of the ASME Boiler and Pressure Vessel Code.

COMPANY: \_\_\_\_\_


SCOPE: **Heating boilers ex**

AUTHORIZED: \_\_\_\_\_


EXPIRES: \_\_\_\_\_

CERTIFICATE NUMBER: \_\_\_\_\_

The American Society of Mechanical Engineers



**CERTIFICATE OF AUTHORIZATION**



The named company (ASME) for the scope of activity shown below in accordance with the applicable rules of the ASME Boiler and Pressure Vessel Code. The use of the ASME Certification Mark and the authority granted by this Certificate of Authorization are subject to the provisions of the agreement set forth in the application. Any construction stamped with the ASME Certification Mark shall have been built strictly in accordance with the provisions of the ASME Boiler and Pressure Vessel Code.

COMPANY: \_\_\_\_\_


SCOPE: **Manufacture an**

AUTHORIZED: \_\_\_\_\_

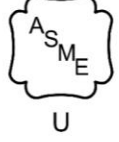
EXPIRES: \_\_\_\_\_

CERTIFICATE NUMBER: \_\_\_\_\_

The American Society of Mechanical Engineers



**CERTIFICATE OF AUTHORIZATION**



The named company (ASME) for the scope of activity shown below in accordance with the applicable rules of the ASME Boiler and Pressure Vessel Code. The use of the ASME Certification Mark and the authority granted by this Certificate of Authorization are subject to the provisions of the agreement set forth in the application. Any construction stamped with the ASME Certification Mark shall have been built strictly in accordance with the provisions of the ASME Boiler and Pressure Vessel Code.

COMPANY: \_\_\_\_\_


SCOPE: **Manufacture of p  
by the above loca**

AUTHORIZED: \_\_\_\_\_

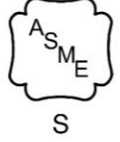
EXPIRES: \_\_\_\_\_

CERTIFICATE NUMBER: \_\_\_\_\_

The American Society of Mechanical Engineers



**CERTIFICATE OF AUTHORIZATION**



The named company is authorized by the American Society of Mechanical Engineers (ASME) for the scope of activity shown below in accordance with the applicable rules of the ASME Boiler and Pressure Vessel Code. The use of the ASME Certification Mark and the authority granted by this Certificate of Authorization are subject to the provisions of the agreement set forth in the application. Any construction stamped with the ASME Certification Mark shall have been built strictly in accordance with the provisions of the ASME Boiler and Pressure Vessel Code.

COMPANY: **Wellons, Inc.  
Sherwood Manufacturing Facility  
14440 S.W. Tualatin - Sherwood Road  
Sherwood, Oregon 97140  
United States**

SCOPE: **Manufacture and assembly of power boilers at the above location and field sites controlled by the above location**

AUTHORIZED: **September 12, 2020**


EXPIRES: **September 12, 2023**

CERTIFICATE NUMBER: **19692**

*David E. Tuttle*  
Board Chair, Conformity Assessment

*Paul Olney*  
Managing Director, Conformity Assessment

The American Society of Mechanical Engineers



**CERTIFICATE OF AUTHORIZATION**



**THE NATIONAL BOARD OF BOILER & PRESSURE VESSEL INSPECTORS**

*This is to certify that*

**Wellons Power Group  
3305 Breckinridge Blvd.  
Ste 102  
Duluth, Georgia 30096  
United States**

Acceptable Abbreviation: WPG

*is authorized to use the R Symbol in accordance with the provisions of the National Board Inspection Code and NB-415, Accreditation of "R" Repair Organizations.*

All activities within the scope of this Authorization shall be controlled by the above location.

The scope of this Authorization is limited to:

Metallic  
Repairs and Alterations  
At  
Shop and Field Locations

Certification Number: 10599

Issue Date: September 14, 2020

Expiration Date: July 30, 2023

Executive Director *John Christ*



**CERTIFICATE OF AUTHORIZATION**



**THE NATIONAL BOARD OF BOILER & PRESSURE VESSEL INSPECTORS**

*to certify that*

**Wellons, Inc.  
Sherwood Manufacturing Facility  
14440 S.W. Tualatin-Sherwood Road  
Sherwood, Oregon 97140**

*is authorized to apply the "NB" mark and register boilers, vessels or other pressure retaining items with the Board.*

The scope of this Authorization is limited to items manufactured at the above location.

The scope of this Authorization shall be limited to:

Metallic  
Repairs and Alterations  
At  
Shop and Field Locations

Authorization is limited to:

Metallic  
Repairs and Alterations  
At  
Shop and Field Locations

Number: 3583

June 29, 2020  
September 12, 2023

*John Christ*

**CERTIFICATE OF AUTHORIZATION to Register**



**THE NATIONAL BOARD OF BOILER & PRESSURE VESSEL INSPECTORS**

*to certify that*

**Wellons, Inc.  
Sherwood Manufacturing Facility  
14440 S.W. Tualatin-Sherwood Road  
Sherwood, Oregon 97140**

*is authorized to apply the "NB" mark and register boilers, vessels or other pressure retaining items with the Board.*

The scope of this Authorization is limited to items manufactured at the above location.

The scope of this Authorization shall be limited to:

Metallic  
Repairs and Alterations  
At  
Shop and Field Locations

Authorization is limited to:

Metallic  
Repairs and Alterations  
At  
Shop and Field Locations

Number: 3583

June 29, 2020  
September 12, 2023

*John Christ*

## Biomass energy systems

- ▶ Thermal energy plant
- ▶ Electrical power generation
- ▶ Cogeneration plant



## Timber drying systems

- ▶ Continuous
- ▶ Batch
- ▶ Package loaded



## Fuel storage systems

- ▶ Silos
- ▶ Live floor bunkers
- ▶ Conveyors



## Electrostatic precipitators



## Front End Engineering Design (FEED) Studies

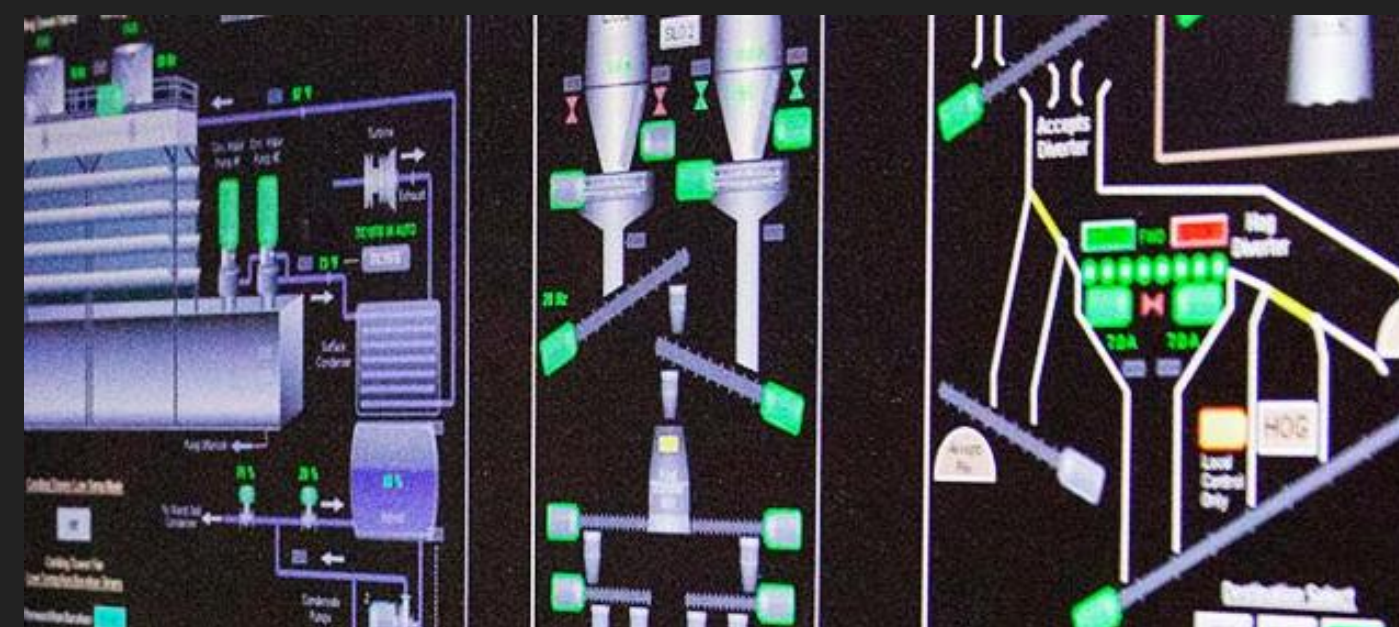
- Fuels and Ash Analyses
- Combustion Testing
- Process Flow Diagrams
- Plant Arrangements
- P&IDs
- Electric Single-Lines
- Itemized Project Cost Estimates

## Engineering and Design capabilities

- Fuel Systems
- Boilers
- Combustion Systems
- Mechanical Systems
- Piping Systems
- Structures and Buildings
- Electrical, Instrumentation & Controls Systems

## Engineering-Procurement-Construction (EPC) capabilities

- Project Management
- Procurement and Expediting
- Project Scheduling and Monitoring
- ASME Quality Control and Assurance for all New Boiler Designs and Retrofits



## Technical Field Services

- Outage Services
- System Inspection
- System Calibration
- System Tuning
- Site Evaluations



## Spare Parts

- Sales & Support
- Upgrades



## Safety

- Corporate Safety Manager
- Continuously Revised Safety Manual
- Projects > 10 workers require a dedicated safety manager on site
- Daily tool box meeting addressing safe approach to project at hand
- Drug Testing and Alcohol Monitoring per Published Wellons Safety Manual
- Member Tappisafe and ISNetWorld
- 2020 EMR 0.92



## Quality Control

- Quality Control Manager
- Comprehensive QC Manual and Processes
- ASME A, PP, S and NBIC R code stamps
- Welder certification and continuity
- Field Service Engineers for verification and accuracy



## Wellons Core Construction Skills

Wellons construction personnel are comprised of experienced construction managers and crew that provide the most modern construction techniques that meet or exceed our high standards of safety, installation, and schedule completion for all our customers' projects.

Wellons is fully capable of being the lead General Contractor for a design-build program or acting as a key partner in assembling key thermal systems within a power or process facility.



## Turnkey Mechanical Services

- Full-Time Safety Professionals
- ASME A, PP, S and NBIC R code stamps
- Skilled Boilermakers, Code Welders, & Riggers
- Pipe Fitting and Welding Services
- Crane Rigging and Setting for Heavy Equipment

