



INTERNATIONAL SYMPOSIUM 2024

8th - 9th October 2024



KEEPING CARBON OUT OF DECARBONISATION

Philip Jarvis, CEO

Low-carbon cement project reaches milestone in efforts to lower construction industry CO₂ emissions

Process stores carbon dioxide in concrete without strength loss

Cutting-Edge Projects Aim to Decarbonize US Cement Emissions

Towards net-zero: Low CO2 cement production

UK breakthrough could slash emissions from cement

Building's hard problem - making concrete green

Answer: Fly Ash

“In life cycle terms, **the opportunities to exploit** the low energy embodied in CCPs such as fly ash, furnace bottom ash, boiler slags and cenospheres **are extensive**”.

“In keeping with **circular economy** concepts, being an industrialised approach that seeks to use one industry's by-product **output** as another industry's material **inputs**”.



FLY ASH OPTIONS

Local Fresh Fly Ash

- ✓ Low Processing Costs
- ✓ Low Transport Costs
- ✗ Low Stock

The Ideal Solution!

Stockpiled Fly Ash

- ✓ High Stock Levels
- ~~✗ High Level of Processing~~
- ! Processing Required

The Answer

Import: Dry Fly Ash Conditioned Fly Ash

- ✗ Dry: High Transport Costs
- ! Conditioned: Lower Transport Costs
- ✗ Dry: Handling / Storage Issues
- ! Conditioned: Processing Required

Easy Option?



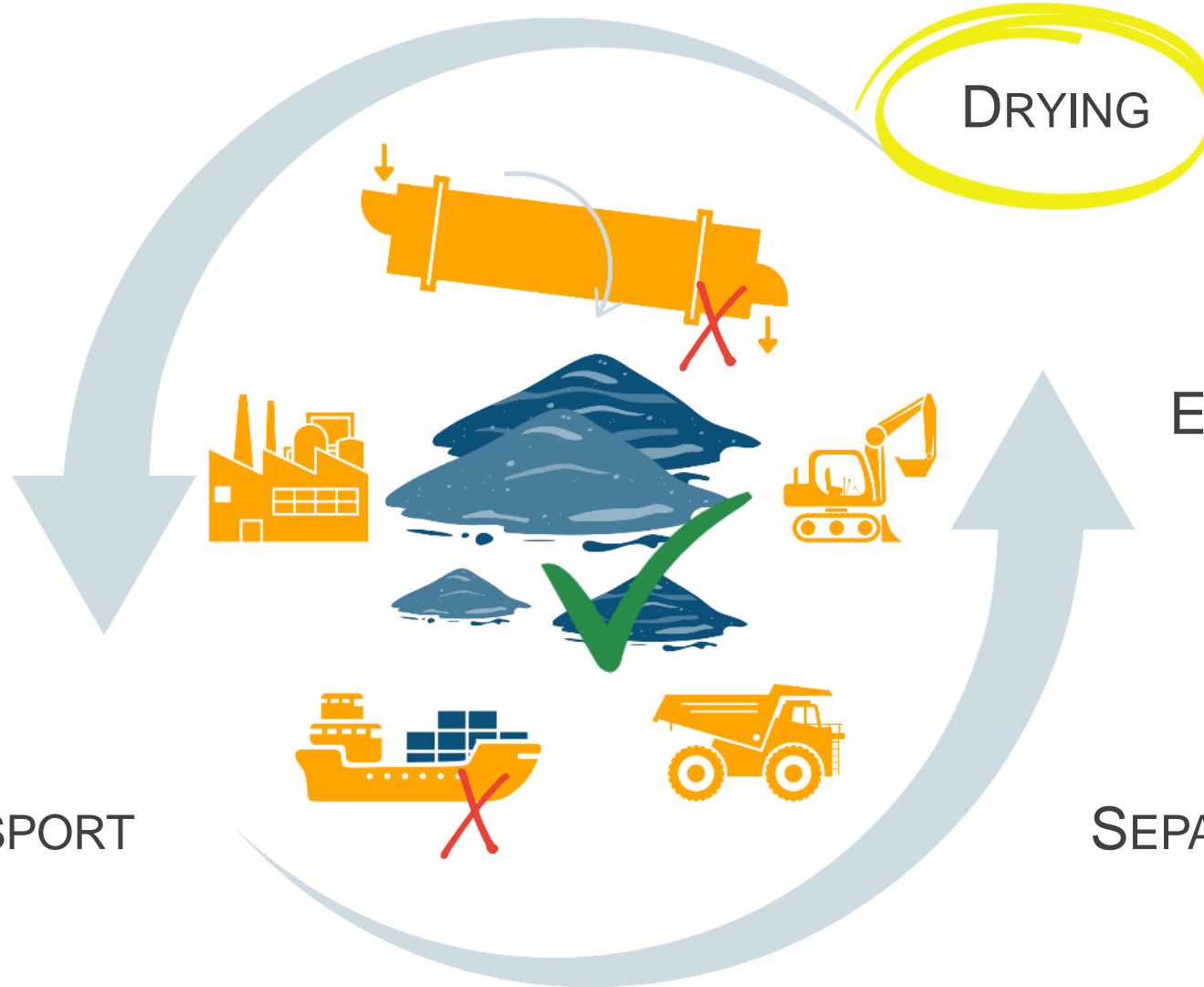
PROCESSING

TRANSPORT

DRYING

EXTRACTION

SEPARATION



THE CARBON IMPACT MUST TAKE ACCOUNT OF THE ENTIRE PROCESS

Old Technology

US Department of Energy, Advanced Manufacturing Office Report May 2022

“**Thermal processing** represents the largest energy use category; it accounts for **63%** of all energy use in manufacturing.

Thermal processing is the largest contributor of carbon dioxide (CO₂) generation, resulting from combustion of fuels and process related chemical reactions, such as in the case of cement and lime production”.



DRYING



HIGHLY ENERGY INTENSIVE



GENERATES SIGNIFICANT LEVELS OF CO₂ EMISSIONS

150 Year-Old Technology Still Used Today

Existing Dryers:

- Fluid Bed
- Rotary Drum
- Flash

Have improved heat transfer efficiency and the time and exposure of particles. ?

All rely on latent heat vaporisation



“COOKS” MATERIAL AT UP TO **400°C** TO VAPORISE MOISTURE (+DWELL TIME)



THERMAL DRYING CAN DAMAGE MATERIAL LIMITING INNOVATION

The Coomtech Solution

Coomtech has developed an efficient way to dry raw materials, replacing the legacy thermal inefficient drying process.

Up to 94% less energy
Down to Zero emissions

A Great British Global Game Changer



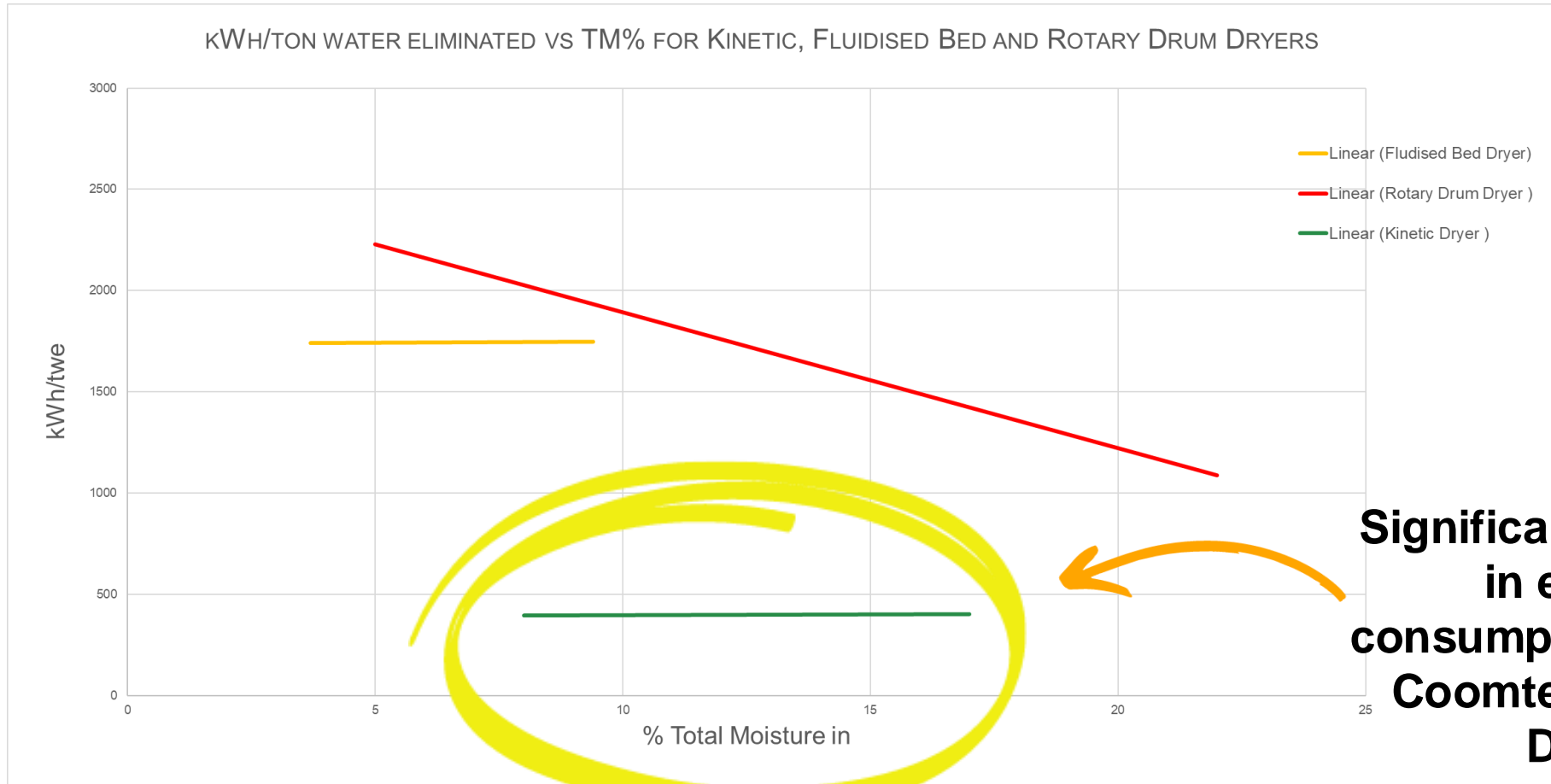
“I have reviewed many companies whose claims violate the laws of thermodynamics. This company has **simply sidestepped** the traditional route to removing water [thermal drying] that requires significant heat.”

Perry Eyster, Senior Research Chemist, The Heritage Group





COMPARISON OF FLUIDISED BED, ROTARY DRUM AND KINETIC DRYING TECHNOLOGIES



Significant reduction in energy consumption with the Coomtech Kinetic Dryer



HOLCIM INVESTS IN CLEANTECH START-UP COOMTECH

- » Holcim: The global leader in sustainable construction.
- » Strategic investment to support their drive to decarbonise the products



<https://www.holcim.com/media/company-news/holcim-invests-coomtech>

Edelio Bermejo, Head of Global R&D

“At Holcim, we are continuously working to implement greener operations for a net-zero future, and to increase the use of recycled materials in our products to drive circular construction.

Coomtech’s low-emission drying technology helps us meet both these goals. I look forward to working with them as a key partner in our journey to decarbonize building.”

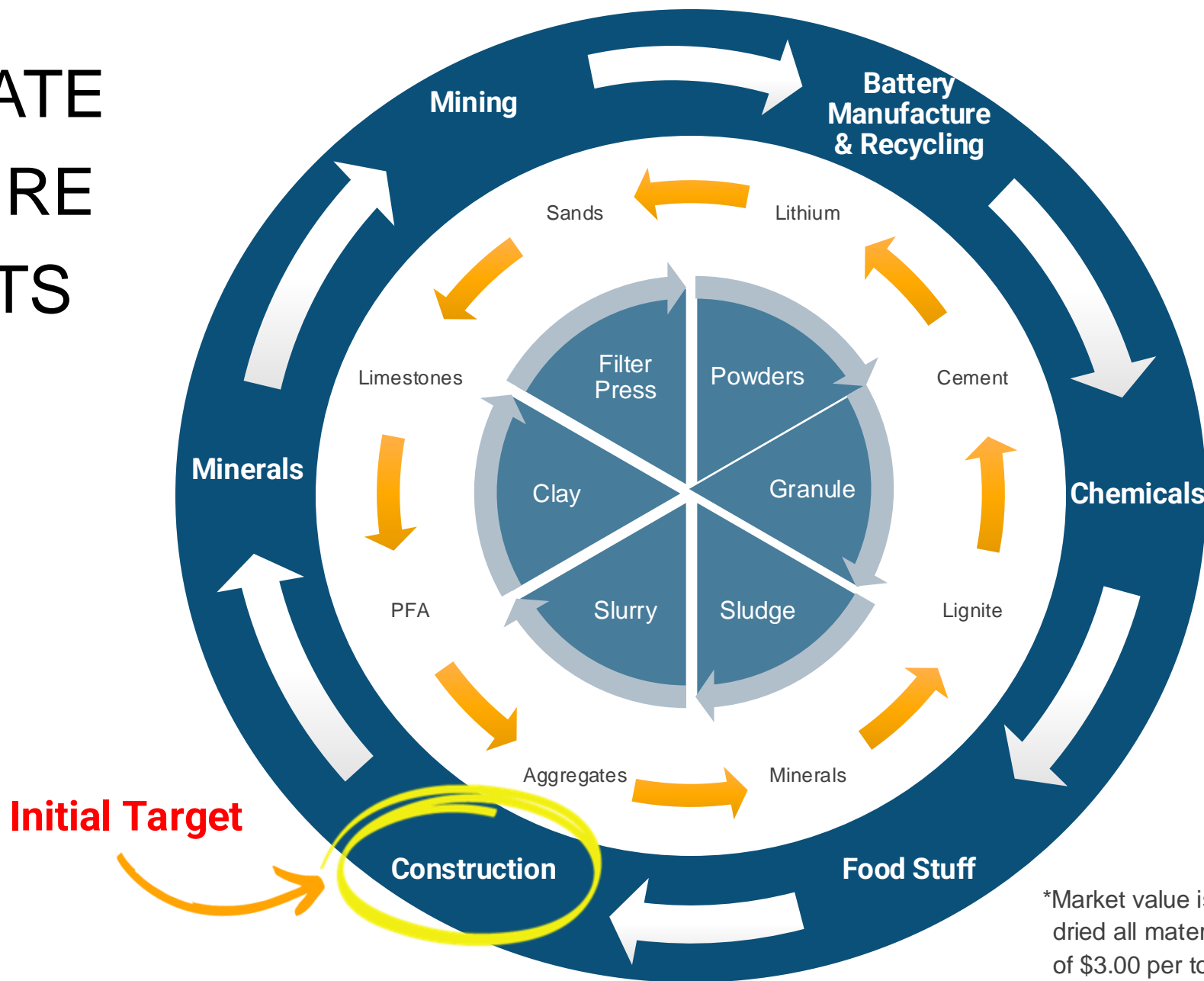


**Kinetic Drying is a new, energy-efficient
drying method.**

**Ideal for drying materials that can be
pneumatically conveyed.**



IMMEDIATE & FUTURE MARKETS



Total Global Market Opportunity*
>\$1Tn +
"A bountiful future"

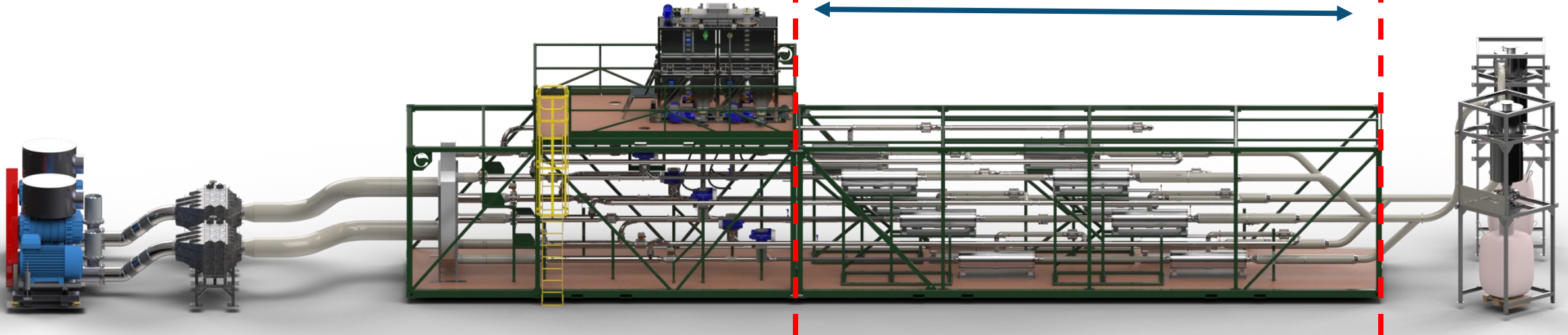
*Market value is the maximum value to Coomtech if it dried all material in the sector based on a license fee of \$3.00 per tonne dried.



Feed section
Off-shelf equipment

Coomtech Core
The innovation

Offtake section
Off-shelf equipment



80% of the hardware comes 'off-the-shelf' from globally recognised suppliers:





PLUG & PLAY - DATA RICH



FLEXIBLE, SCALABLE, COST EFFECTIVE



The system uses advanced technology to adapt in real-time to improve the performance and efficiency of the process.



Clients can build capacity to match their requirements at any given point by simply plugging in more modules



Production speeds can be varied by turning off or on modules, reducing operating costs/maintains efficiency



Increases productivity as can *hot-service* module by module, meaning less downtime/improved margins v. traditional *whole-plant-down*, loss of production



COOMTECH VS THERMAL DRYING

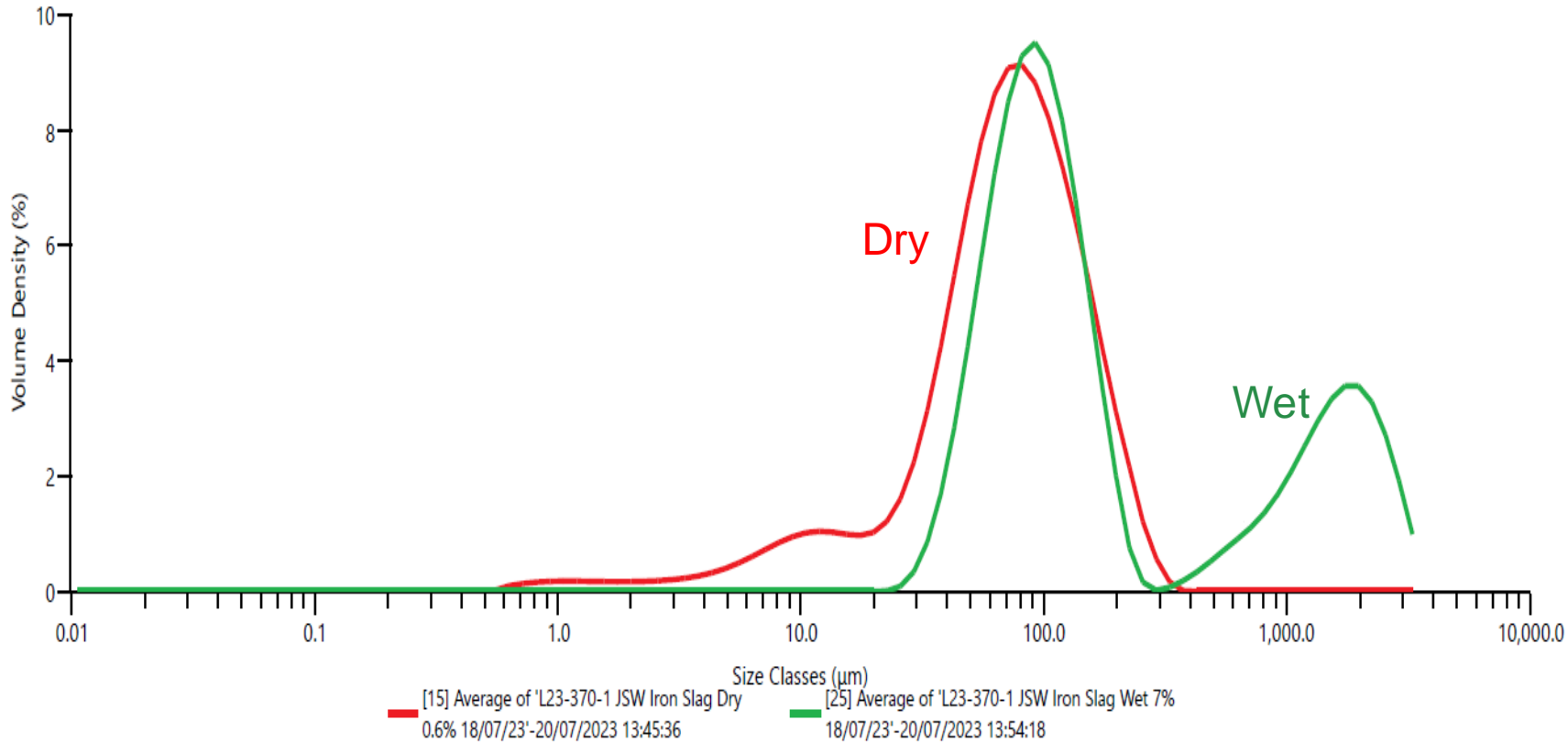
Customer Drying Trial	Legacy Thermal Drying Energy Consumption	Coomtech KED Energy incl Waste Heat*
Harvested fly ash, 15% to 0.8% moisture India Cementitious applications	244 kWh/mt ¹	13.8 kWh/mt -94%
Coarse angular sand, 5% to 0.1% UK Angular Sand	73 kWh/mt ²	9.6 kWh/mt -87%
Ground blast furnace slag , 8% to <0.5% European top three GBFS suppliers	130 kWh/mt ²	8.3 kWh/mt -94%

¹UK University data ²Estimated

*Waste heat has a greater impact on the Coomtech system than does to thermal systems



PARTICLE SIZE DISTRIBUTION IMPROVEMENT



Coomtech Kinetic Dryer breaks up agglomerates and drives PSD to the finer end.

Reduces post drying grinding load - saving energy

Material sample GBFS from India.



NEW @ COOMTECH IN 2024



Coomtech low heat requirements means our system can benefit from waste heat that traditional driers cannot.



Quad Module: 48 T/hr



50% improvement in Production levels
10% improvement in Energy Efficiency




- 2 types of systems:
- Twin Treatment Zone
 - Single Treatment Zone



EXCLUSIVE UPDATE

**ALL ELECTRIC
LOW ENERGY
DRYER**

**Available in
2025**

- » Amazing new innovations in building materials
- » Most involve pre-processing to remove moisture
- » Advantage of reclaimed material is lost by **carbon intensive drying**
- » Coomtech = 



INNOVATION EXISTS: IT'S YOUR MOVE

Viable solutions exist now – making the ecological logical.

Thankyou

Contact Coomtech:

Philip Jarvis, CEO

pjarvis@coomtech.com

+44 (0)7767 833 525

