

Energy & Water Optimization

Business potential and Mapping the Opportunity at Plant

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The Pressure is on Industry



Customer demands sustainability



Regulations are becoming stricter



Water & Energy costs are rising

How to increase industrial production and at the same time maintain (reduce) energy & water cost in production?

Industrial manufacturing requires massive use of energy & water resource

Energy use

Manufacturing industry	Energy (MJ/kg product) ¹
Milk Powder	15.22
Fresh Milk	2.73
Ketchup	2.03
French fries	15.16
Cheese	5.04

Water use

Manufacturing industry	Water use
Brewery	1.5 - 5 hl/hl product
Dairy	0.6 - 5 m ³ /kg product
Automotive	2 - 6 m ³ /per vehicle
Textile	100 - 150 lit/kg fabric



¹ Sabur. A et al., Mapping energy consumption in food manufacturing, Food Science and Technology

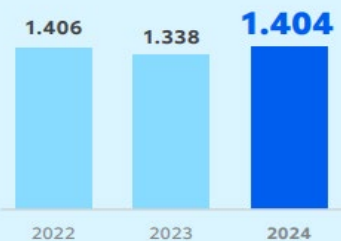


Target language: Overall net-zero target: PT Samora Usaha Makmur commits to reach net-zero greenhouse gas emissions across the value chain by 2050. Near-term targets: Energy & Industry: PT Samora Usaha Makmur commits to reduce absolute scope 1 and 2 GHG emissions 42% by 2030 from a 2022 base year.* PT Samora Usaha Makmur also commits to



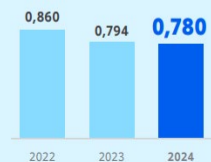
Pengambilan Air Water Withdrawal

(dalam megaliter)
(in megalitre)



Intensitas Energi Energy Intensity

(dalam GJ/ton)
(in GJ/tonnes)



Scope 1 and 2 GHG Emissions Intensity from Energy Consumption (in ton CO₂-e/ton of product)*

Intensitas Emisi GRK Scope 1 dan 2 dari Konsumsi Energi (dalam ton CO₂-e/ton produk)*



Water Intensity Reduction Penurunan Intensitas Air



Water intensity Reduction in 2024 relative to 2018 base year
Penurunan intensitas air pada tahun 2024 dibandingkan tahun acuan 2018

company_name	location
Asia Pacific Rayon	Indonesia
PT Austindo Nusantara Jaya Tbk.	Indonesia
PT Ecogreen Oleochemicals	Indonesia
PT INDESSO AROMA	Indonesia
PT KAHATEX	Indonesia
PT Pan Brothers Tbk	Indonesia
PT PRIMA SEJATI SEJAHTERA	Indonesia
PT Samora Usaha Makmur	Indonesia
PT Semen Indonesia (Persero) Tbk.	Indonesia
PT. EVER SHINE TEX.TBK	Indonesia
PT. Indo Oil Perkasa Tbk	Indonesia
PT. Parkland World Indonesia	Indonesia
PT. Sugar Labinta	Indonesia
Tunas Sawa Erma (TSE) Group	Indonesia
PT Pungkook Indonesia One	Indonesia
PT. Apparel One Indonesia	Indonesia
PT. TAH SUNG HUNG	Indonesia
PT. Handal Sukses Karya	Indonesia
PT Nikomas Gemilang	Indonesia
PT. Glostar Indonesia	Indonesia
PT Sukkha Citta Indonesia	Indonesia
PT. Wintai Garment	Indonesia
Argha Karya Prima Industry	Indonesia
TICKET TO THE MOON	Indonesia
PT. Meriah Indo Fashion	Indonesia



How we can help industry to reduce water & energy
AND at the same time
create long term business opportunity



MINDSET change from commoditized sales to solution sales for long term business opportunity



Industry wants to upgrade pumps

1



- 303 Million IDR sales
- 5-10 % kWh saving
- Hit & Run business

One to One replacement
Large competition & price game

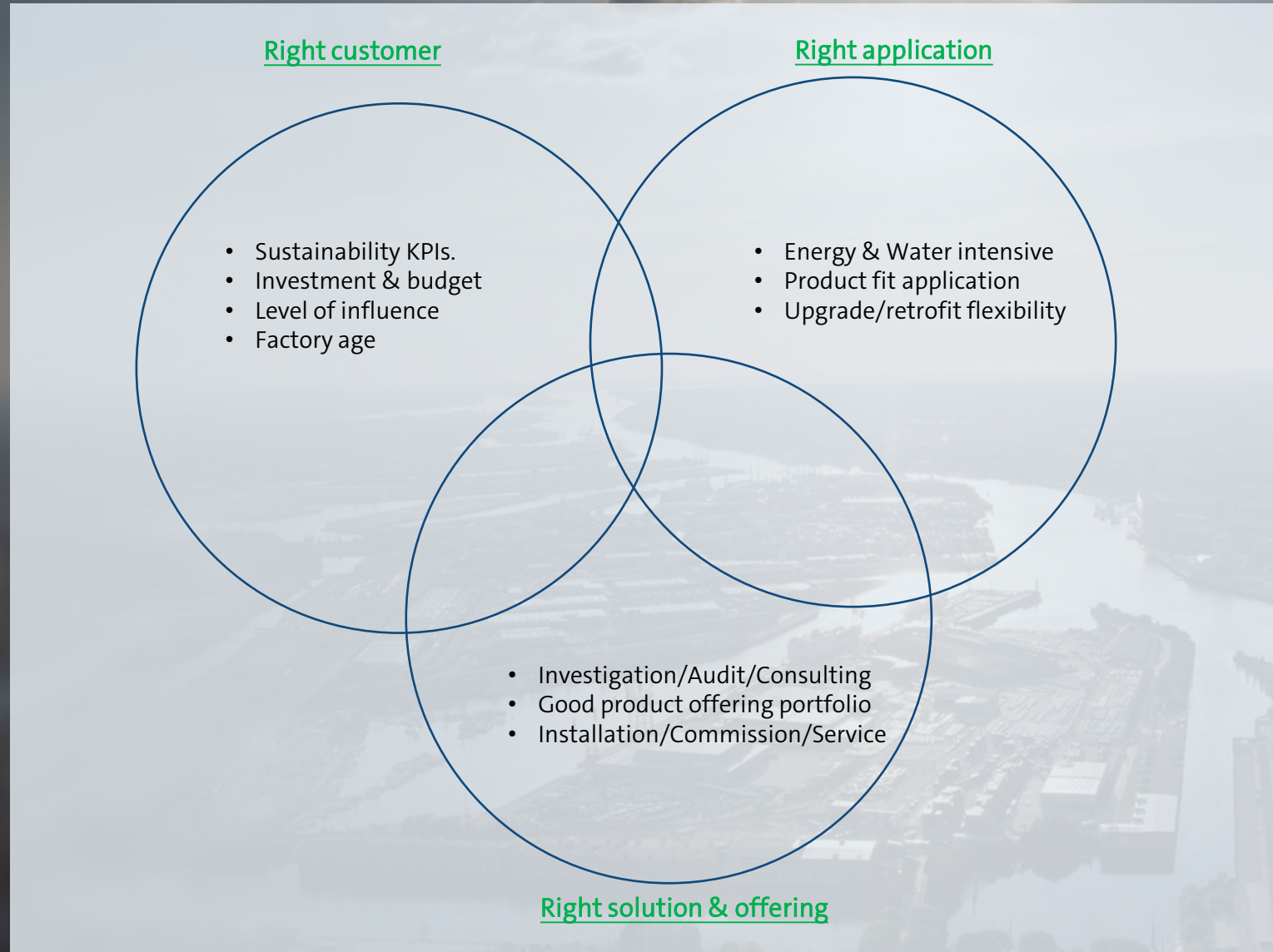
2



- 530 Million IDR sales
- 30-35 % kWh saving
- Long term business

Solution sales
Solution with smart way & being consultant

Mapping out the opportunities



Right customer selection



1

Old manufacturing site
(>10 yrs)

2

Sustainability KPIs
(CO₂ and Water reduction)

3

Budget availability for
upgrades projects

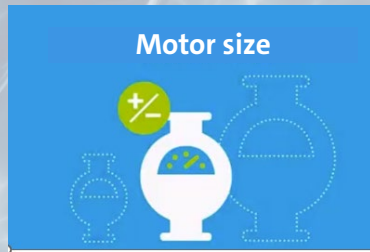
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Decentralized decision & No
external procurement
agreement

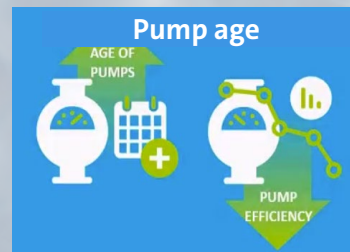
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Good reference/relation &
influence level

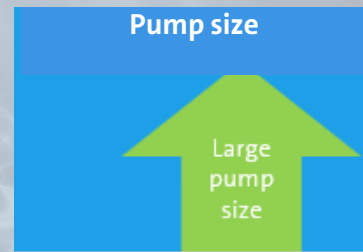
Pumps to target for upgrades



Larger motor size pump
(>30 kW)



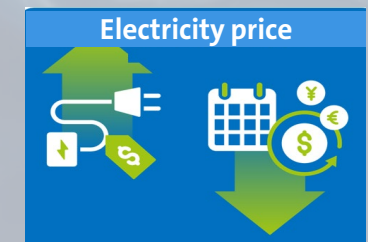
Old pump (>10 yrs)



Duty point vs Capacity
(> 2 bar or > 20 m³/hr)



Long operation hours
(> 5000 hr/yr)



Higher-Medium price

Right Application selection



WATER TREATMENT AREA



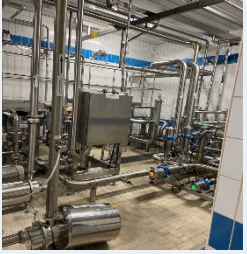
WATER TREATMENT SYSTEM &
WATER SUPPLY

UTILITY AREA



COOLING & BOILING APPLICATION

CORE PRODUCTION AREA



CIP & BOTTLING/FILLING
SURFACE TREATMENT
METAL PARTS WASHING
PAINTING AREA

Focus for water & energy intensive Industrial Application

Cooling Application

Solution sales
30-40 % saving

Water loss reduction

Cooling load control
(Speed control)

Fan control

Valve loss removal
(Speed control)

Motor downsizing

Efficient pump &
motor

One to one replacement
5-10 % saving

Saving with efficient
pump & motor

Mapping opportunities



Fixed speed operation pump



Valve control operation



Uncontrolled fan operation



Uncontrolled chemical



Uncontrolled water blowdown



No dynamic control on cooling demand

Business potential

Grundfos pump control with integration of pump, drive sensor and communication can optimize the entire cooling system

Cooling application	Sales opportunities
Primary /Secondary pumps (distribution)	3-10 pumps
Dosing pumps	2-4 pumps
Drives (VFD)	3-10 units
Sensors	2-4 units
Control & Communication	1-3 units

Boiler Application



Solution sales
30-40 % saving

Good steam quality &
gas use reduction

Bypass removal
(speed control)

Valve loss removal
(Speed control)

Motor downsizing

Efficient pump &
motor

One to one replacement
5-10 % saving

Saving with efficient
pump & motor

Mapping opportunities



Business potential

Large number of pump, controller and communication solution can be provided by Grundfos as part of boiler optimization solution



Boiling application	Sales opportunities
Dosing pumps	2-3 pumps
Condensate pump	2-4 pump
Boiler feed pump	2-4 pump
Drives (VFD)	3-10 units
Sensors	2-4 units
Control & Communication	1-3 units

Water treatment & Supply Application



GRUND FOS

Possibility in every

Mapping opportunities

Water treatment & supply integration



Poor integration and control results frequent start/stop
Capacity/Supply limitation

SOFTENING SYSTEM (Ion exchange)



Fixed speed pump (No pressure /flow control)
Frequent regeneration (No control)

SAND FILTER SYSTEM CARBON FILTER SYSTEM



Fixed speed pump (No pressure /flow control)
Poor backwash control mechanism
No water recovery system

REVERSE OSMOSIS (RO) SYSTEM



Fixed speed pump (No pressure /flow control)
High energy use > 4 kWh/m³
Poor water recovery < 65 %

BOTTLING LINE



Fixed speed pump (No pressure /flow control)
No water recovery line

Business potential

Smart pump control can help to optimize water loss & energy optimization in these system

Water treatment application	Number of pump
Cartilage /Bag filter	1-2 pumps
Sand filter system	2-3 pump
Softening system	1-2 pump
Ultrafiltration system	2-4 pump
Reverse Osmosis system	2-4 pump
Carbon filter system	2-3 pump
Disinfection system	1-2 pump
Supply tank	2-4 pump
Total	11-25 pump

And there are many more
area to look for energy &
water optimization.....



How can we work together on this Journey?



Strong customer proximity & delivery

Grundfos partner



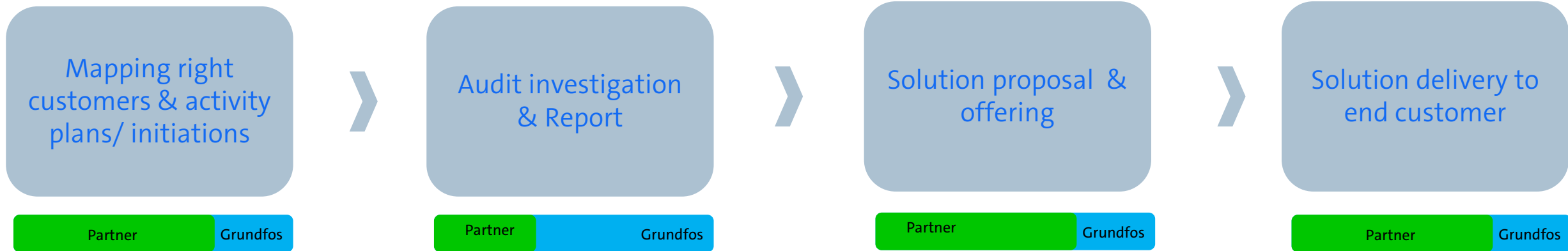
1 + 1 = 3

Strong application knowHow & product offering

Grundfos



Collaboration to offer solution



Any Question ?

Contact : bpoudel@grundfos.com