

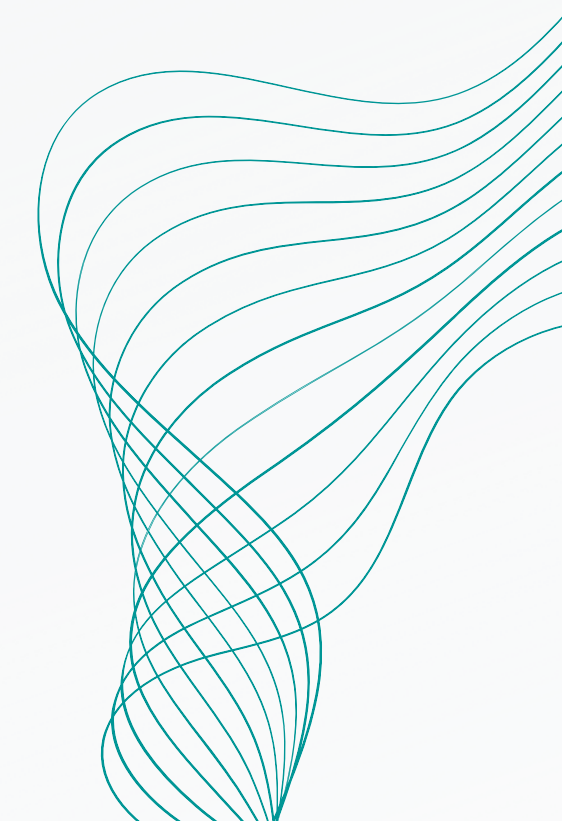
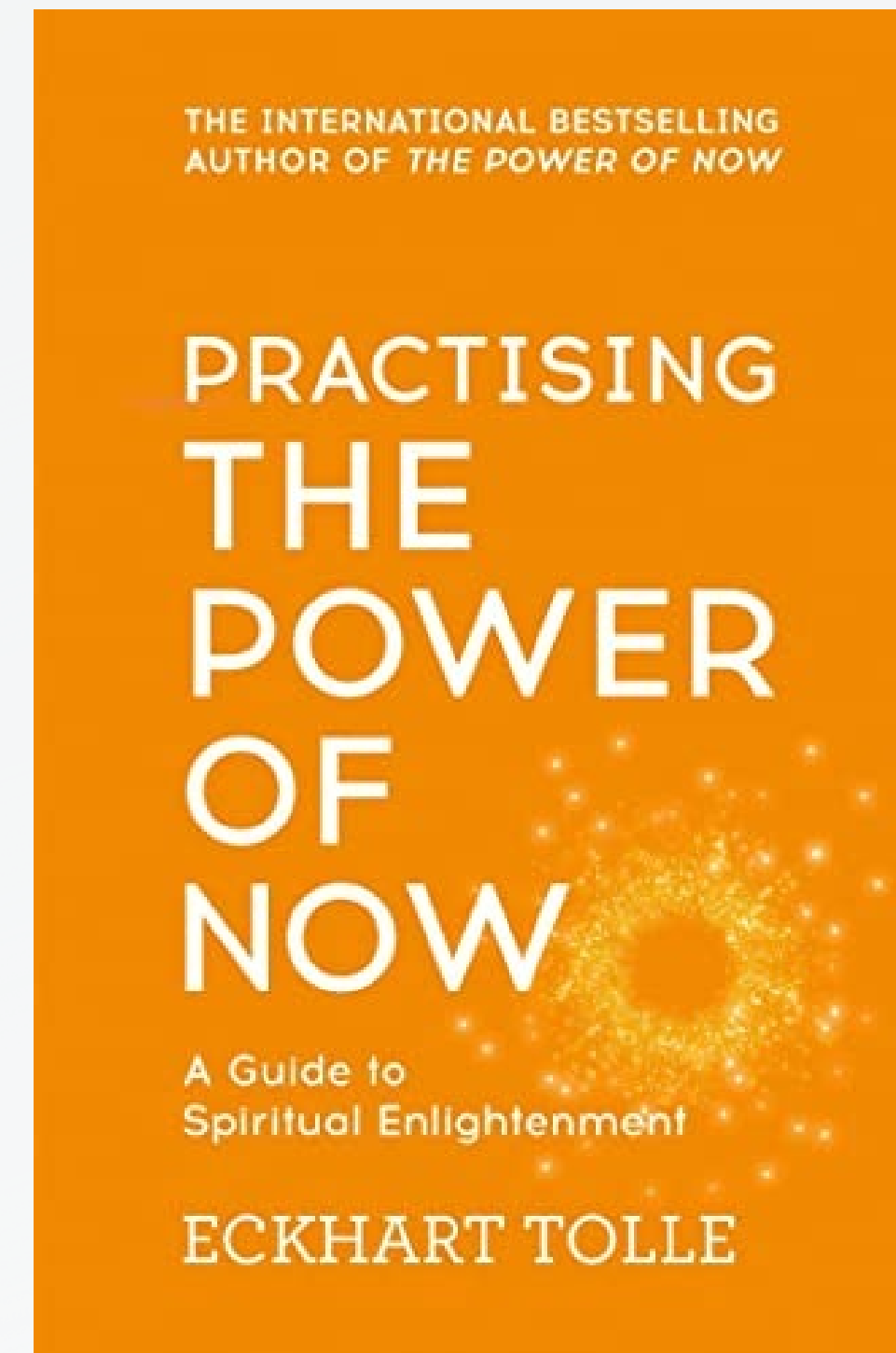
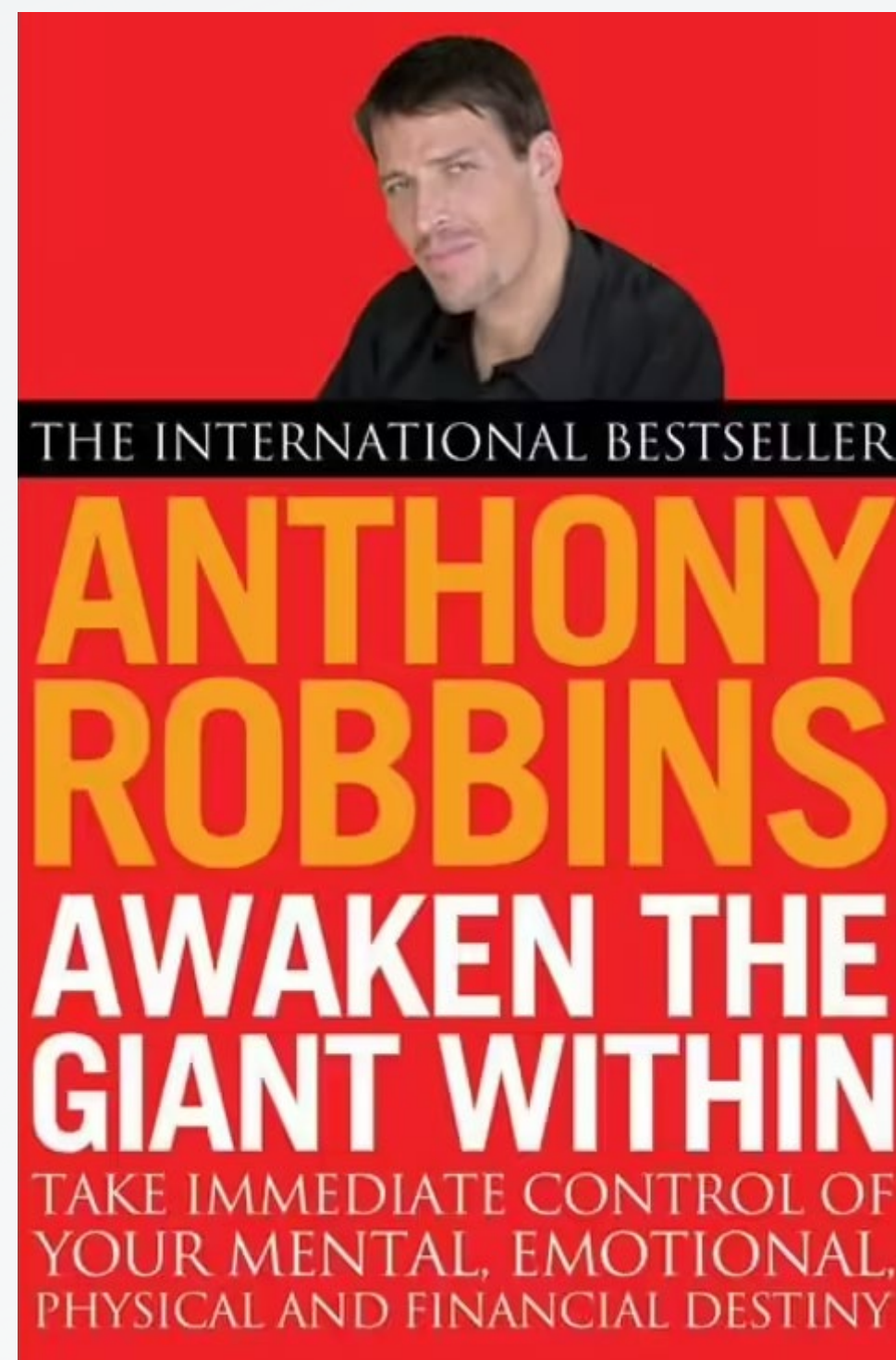
FUTURE FOCUS

PATHWAYS TO RESILIENCE, GROWTH & INNOVATION



Dr Kelly Hill

Snr Innovation
Manager
Isle Utilities



Stop hiding from transformation



Why is transformation so exhausting?



How do we fix it?

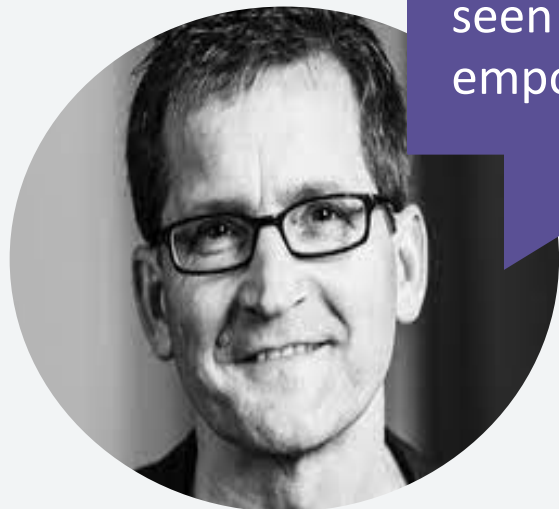


5 Strategic Imperatives

- putting people first -

Jim Hemerling

"I have seen how transformation done incorrectly can destroy morale and motivation. But I have also seen that when it is done right, it can energize and empower."



01

INSPIRE THROUGH PURPOSE

02

03

04

05

INSPIRE THROUGH

Tackling Climate Change

- water efficiency programs
- resource recovery
- net zero goals
- reducing emissions
- Nature based solutions

Public Health Protection

- source water protection
- liveable cities
- WBE



Kelly Hill (She/Her) • You

Water Industry | Research, Development & Innovation | Strategy

? Please Vote Water Industry - I'm looking for inspiration incentive!!

😞 I've been thinking a lot lately about what motivates us to go to work...

Employees of Lego are

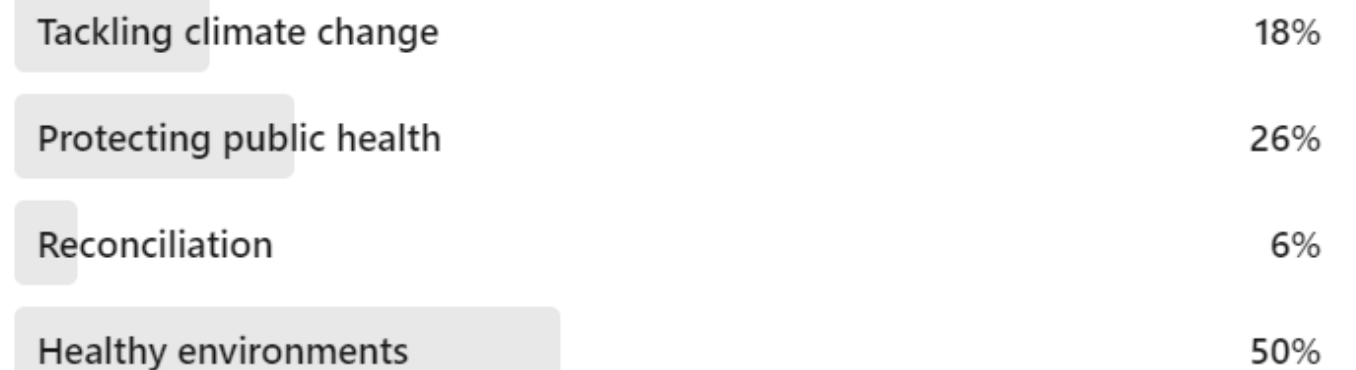
🌟 "Inspiring and Developing the Builders of Tomorrow" 🌟

💧 What is it that the water industry does that makes you feel like you're working for a purpose?

#inspiration #motivation #waterindustry #altruisticjobs #water #environment #people #research

What would you say is the most rewarding or altruistic thing the water industry is working on?

You can see how people vote. [Learn more](#)



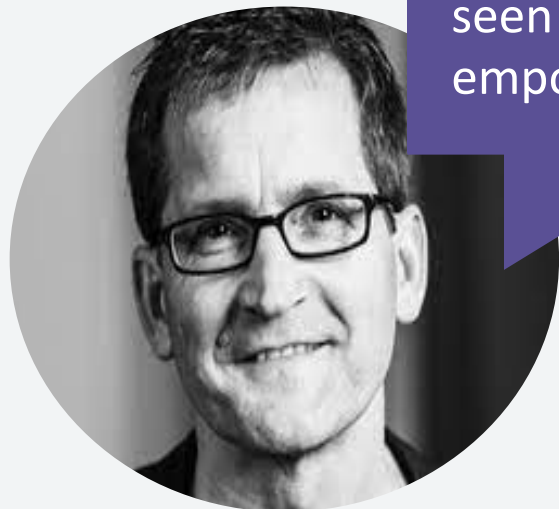
sources of contamination

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COLLABORATION IN INNOVATION



Australian Government
Australian Research Council



24 Currently active CRCs

- 8 Energy / Mining
- 6 Digital / IoT
- 5 Food / Agriculture
- 3 Building / Development
- 3 water

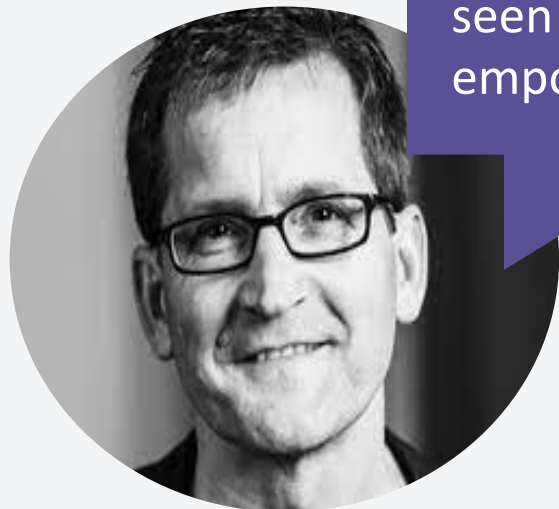


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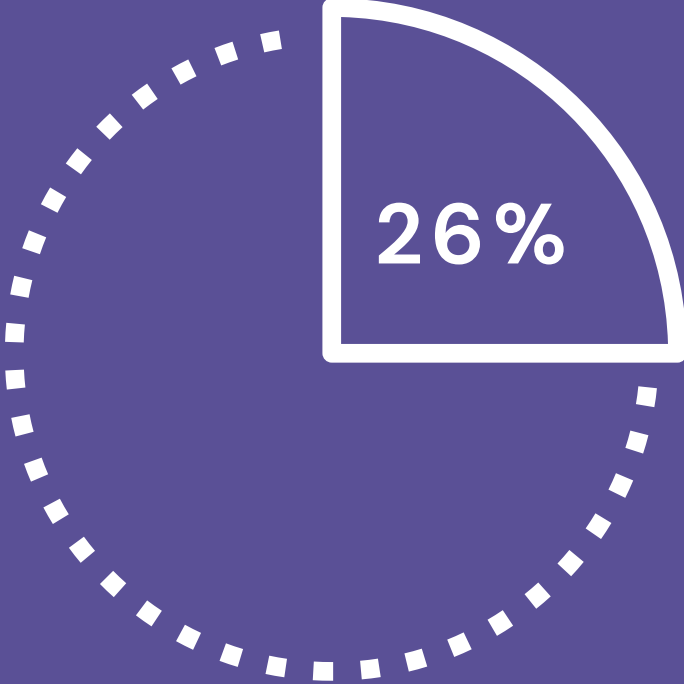
INCLUSIVE LEADERSHIP

04

05

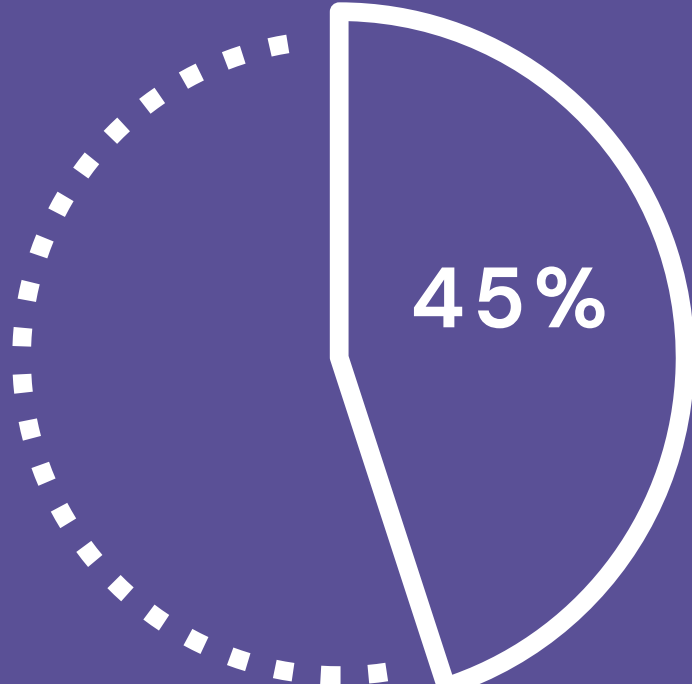
STATISTICS

Companies with **above average** diversity scores have higher innovation revenue



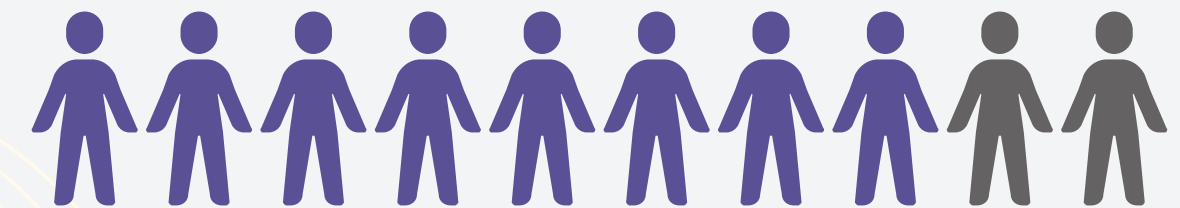
26%

Companies with **below average** diversity scores have lower innovation revenue



45%

1,700



Survey of 1,700 companies
across 8 countries

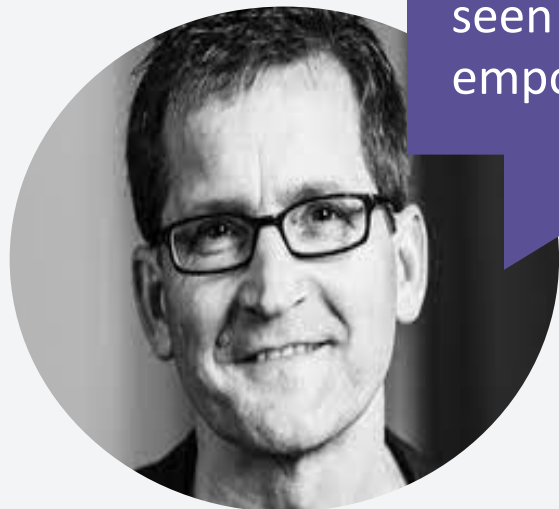
- Harvard Business Review

5 Strategic Imperatives

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04

GO ALL IN

05

ALL-IN STRATEGIES



Purpose

STRATEGY N°1



Collaboration

STRATEGY N°2



Diversity

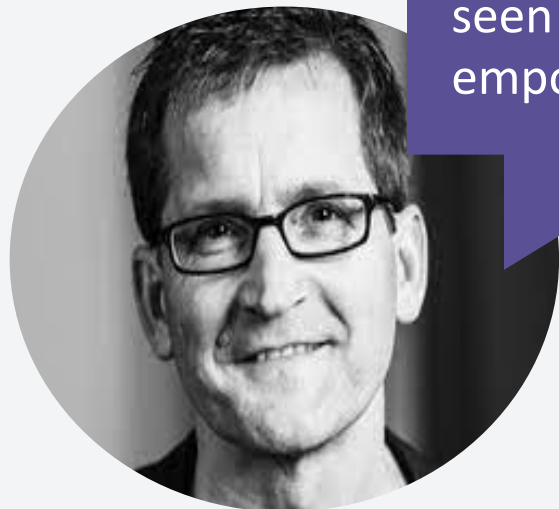
STRATEGY N°3

5 Strategic Imperatives

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INVEST IN SKILLS, TOOLS AND BEHAVIOURS

FUTURE FOCUS

Take forward those 5 steps... Current challenges, emerging innovations, sustainable solutions, & staying in the loop!



**COLLABORATIVE
BEHAVIOURS**



**SKILL
DEVELOPEMNT**



NEW TOOLS



CURRENT CHALLENGES

01

Water Scarcity

- Regional variations
- Impact on Communities

02

Climate change

- Resilience and adaptation
- Water resource options
- Climate resilient infrastructure

03

Ageing Infrastructure

- Infrastructure investment
- Ageing assets
- Technology for maintenance

04

Population Growth

- Population movement
- Increase water demand
- Efficient water use
- Network capacity

05

Pollution

- Microbial
- Water Quality
- Chemical
- Emerging / unknown

CURRENT RESEARCH CHALLENGES

CIRCULAR
ECONOMY

SERVICE
DELIVERY

LIVEABILITY

SUPPLY
OPTIMISATION

WORKFORCE

CUSTOMERS

CURRENT INNOVATION CHALLENGES

CIRCULAR
ECONOMY

SERVICE
DELIVERY

LIVEABILITY

SUPPLY
OPTIMISATION

WORKFORCE

CUSTOMERS

EMERGING INNOVATIONS

Safety & workforce

- VR headsets for training
- Digital management tools for field ops
- radar imaging technology for excavation
- wearable technologies



Net zero

- Energy efficient treatment processes – Aeration
- Emissions monitoring

Natural Solutions

- Thermal treatment
- Algal wastewater treatment
- Advanced wetlands
 - Phosphorous absorption pellets
 - Oyster reef restoration

SUSTAINABLE SOLUTIONS



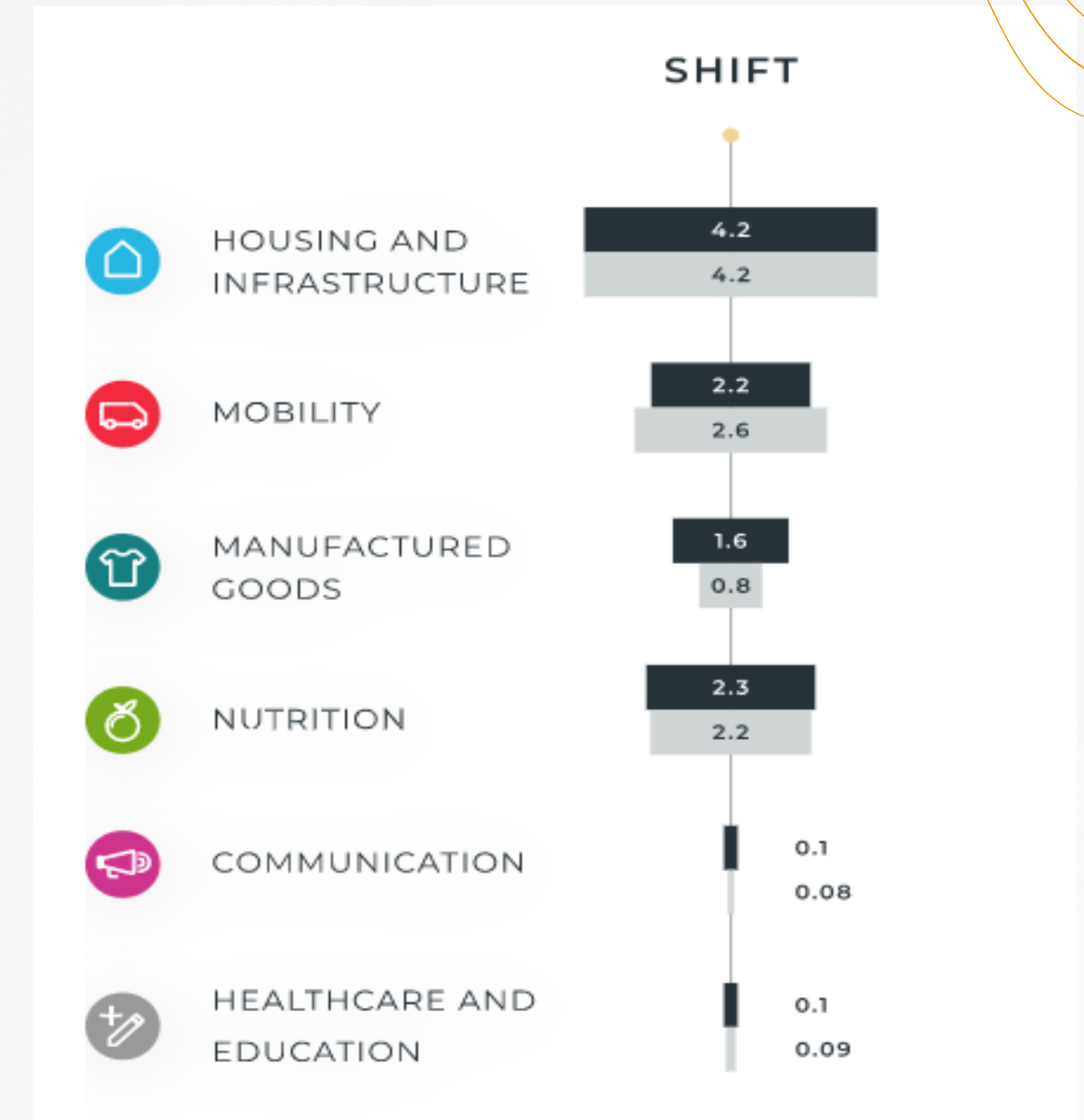
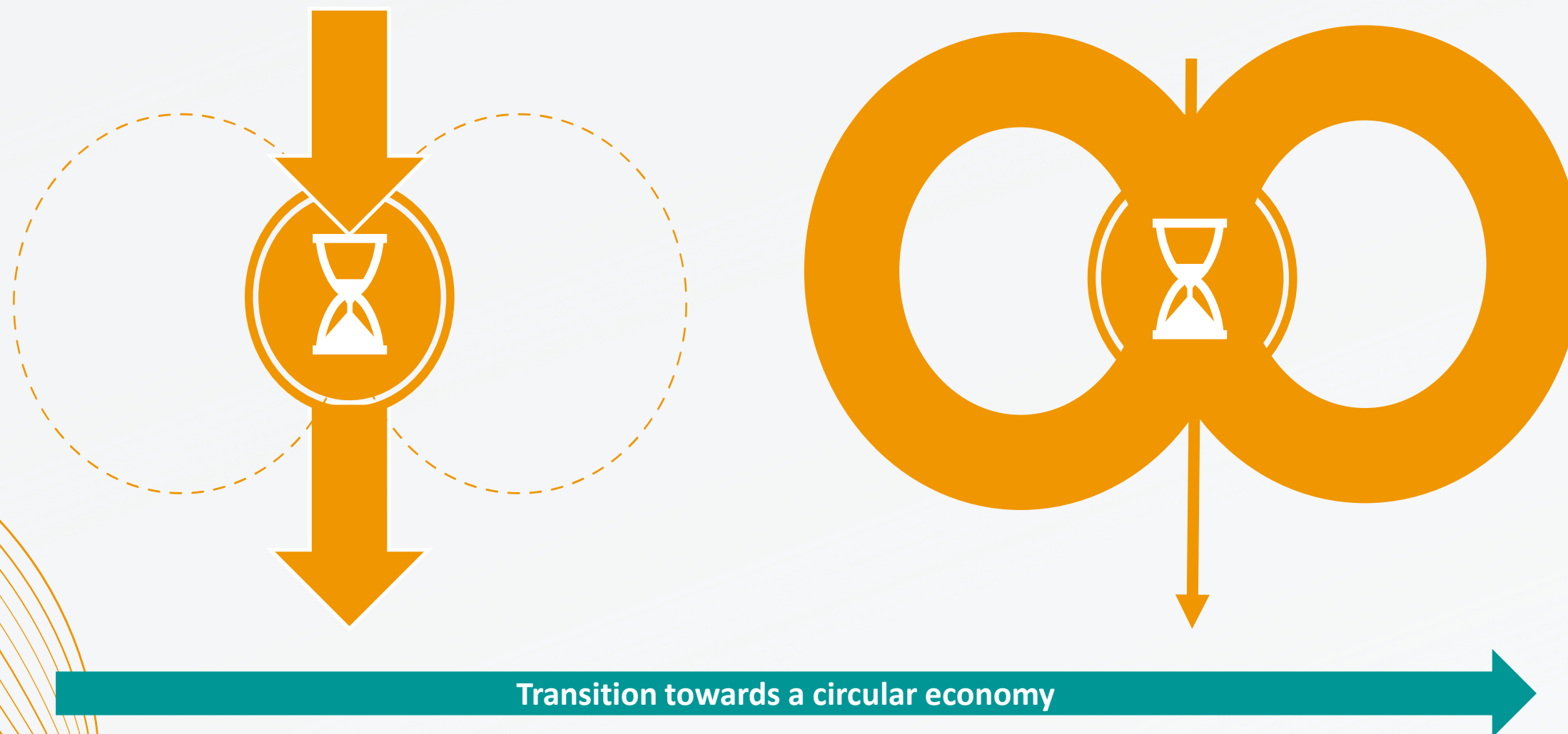
Water-Energy Nexus



Circular Economy



CIRCULAR ECONOMY



■ **Material footprint (Gt)**
■ **Carbon footprint (Gt)**

All of the numbers are negative and the unit measure is billion tonnes

Cir



decreasing

optimising

retaining

RETHINK

RECONFIGURING AND RE-CONCEPTUALISING THE WAY WATER IS USED TO FAVOUR A MORE CIRCULAR UTILISATION

AVOID

PREVENTING THE USE OF WATER

REDUCE

USING LESS WATER THAN IN THE BUSINESS-AS-USUAL SCENARIO

REPLACE

SUBSTITUTION OF WATER WITH ANOTHER SUBSTANCE

REUSE

USING WATER AGAIN AS IT IS (NO TREATMENT BEFORE REUSING WATER)

RECYCLE

USING WATER AGAIN AFTER TREATMENT

CASCADING

SEQUENCE OF CONSECUTIVE USES OF WATER FOR DIFFERENT PURPOSES

STORE

TRANSFER OF USED WATER TO A RESERVOIR

RECOVER

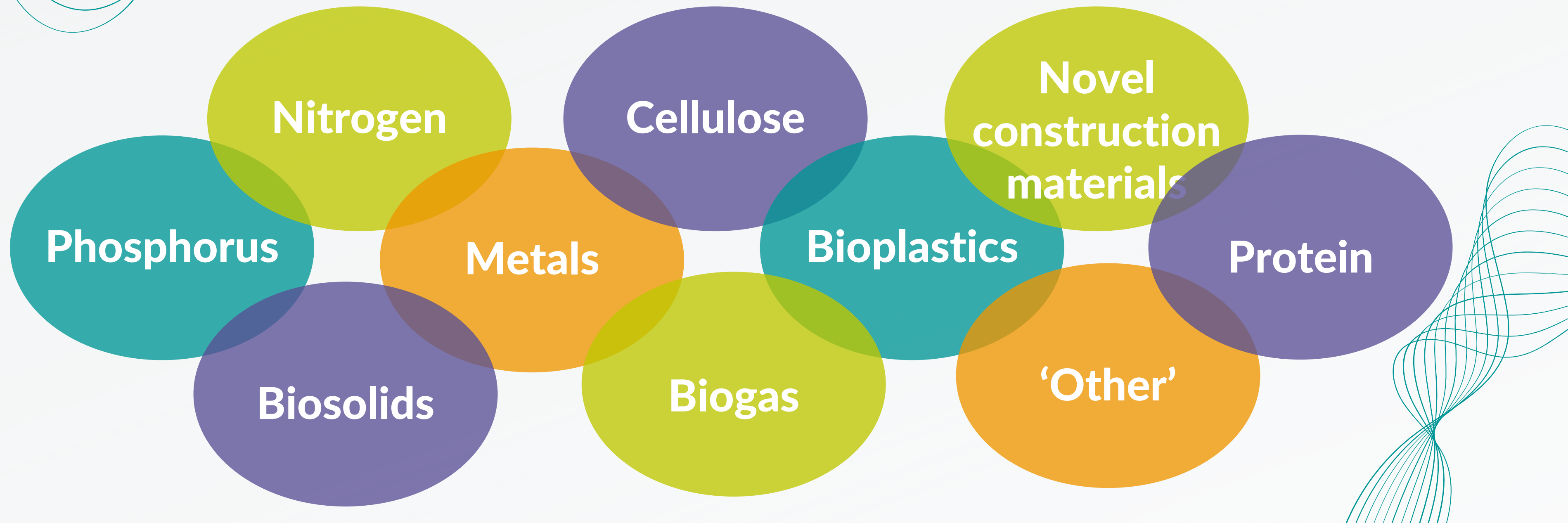
RETRIEVAL OF VALUABLE BIOCHEMICAL COMPOUNDS AND RETENTION OR GENERATION OF ENERGY

CEW)



RESOURCE RECOVERY PRODUCTS

Resource recovery from wastewater can cover a wide range of products as shown below.



PRODUCT CATEGORIES

The products, markets and customers can be grouped into three categories: core products, new products and future products as shown below.

CORE



These are core products that a Water Utility may have historically implemented successfully. Technology and markets for the product are well-established.

Timeframe: Now

Opportunity: Enhance yield and quality

Products:

- Biogas to electricity
- Biosolids to land

Drivers:

- Offset electricity costs
- Offset disposal costs
- Farmer-driven needs

NEW



These are new products that a Water Utility may be not yet producing. These are technically well-developed but needs vetting in a local context. Must not have any adverse impact on core product streams.

Timeframe: Up to 5 years

Opportunity: feasibility and trial

Products:

- Phosphorus
- Biosolids as SRF
- Gas-to-grid

Drivers:

- Market trends, reg. compliance
- Contaminants (eg. PFAS)

FUTURE



Products and services that can be provided by a Water Utility in the future, still requiring substantial R&D and/or growth in the market to the viable.

Timeframe: 5+ years

Opportunity: Research & stay informed

Products & services:

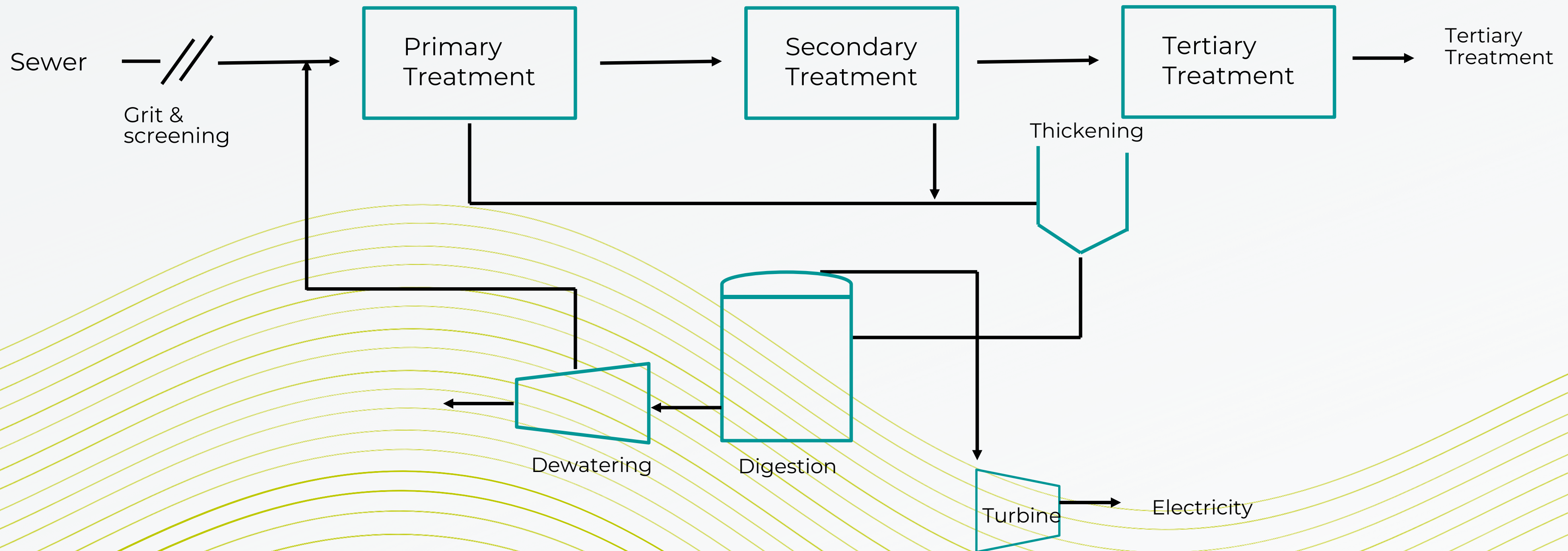
- Bioplastics, bricks, metals
- Ammonia
- Integrated utility service
- Grit & screenings

Drivers:

- Research trends
- Disruption
- Reputation

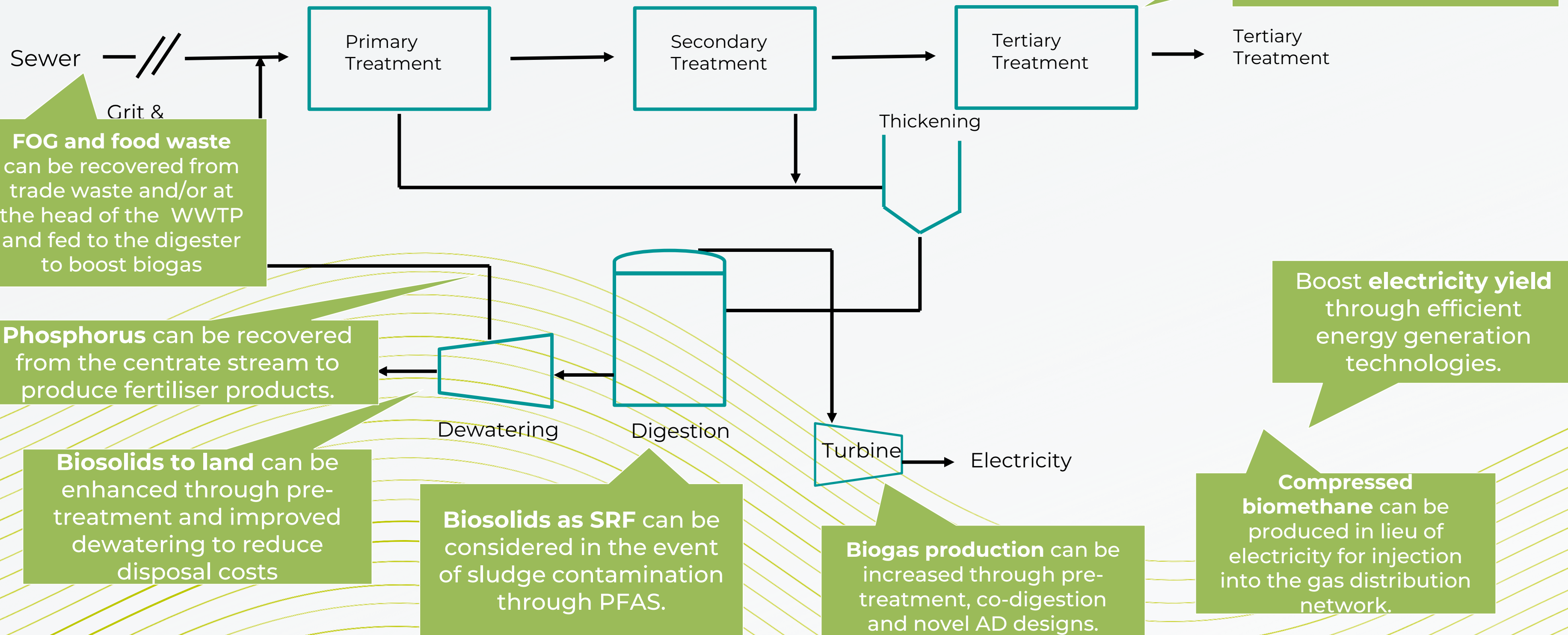
PRODUCT LOCATIONS

Resource recovery was defined as the production of a valuable by-product from the waste treatment process - i.e. the WWTPs and AD facilities. The opportunities for resource recovery of core, new and future products is depicted in the following two pages in the context of a wastewater treatment process.



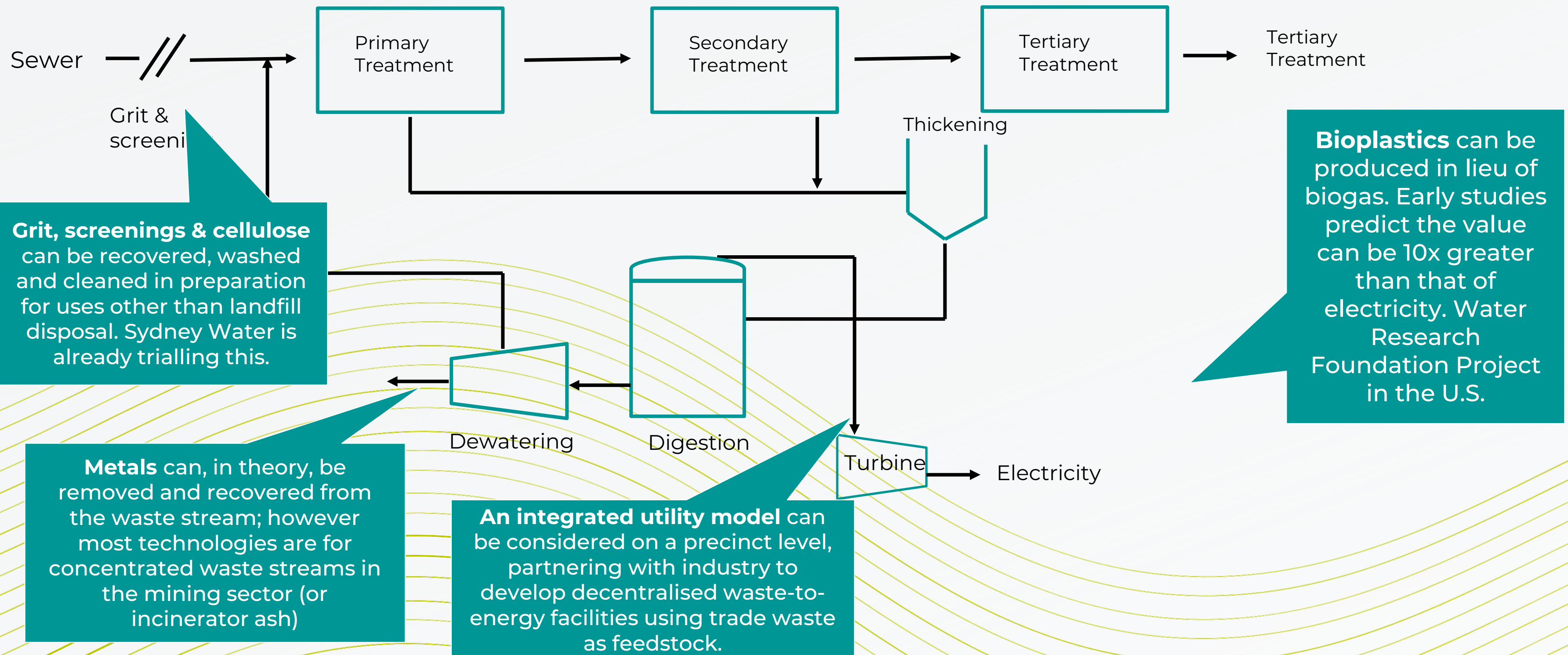
CORE & NEW PRODUCT LOCATIONS

Core and new product recovery locations are shown below.



FUTURE PRODUCT LOCATIONS

Core and new product recovery locations are shown below.



“Connect with us to tap into Isle Utilities’ global network of water innovators”

HOW TO GET INVOLVED



W-Lab | Australia & New Zealand

W-Lab is a collaborative innovation forum for Australia and New Zealand water utilities delivered in partnership with WSAA. W-Lab provides a network of innovators, water experts and authorities leveraging technology and innovation to secure the future of the water industry. The program operates on a cyclical basis for water utilities, which includes technology searching, due diligence, technology selection, presenter coaching and industry innovation workshops.

BWIP (Bulk Water Innovation Partnership) | Global

The Bulk Water Innovation Partnership brings together Bulk Water Utilities with shared interests and needs across research and innovation. Through the program Isle brings together knowledge sharing, understanding water industry needs to define key industry challenges, and scope the technology and innovation landscape across these areas.

World Water Innovation Forum (WWIF) | Global

WWIF brings together businesses from around the world to tackle some of the biggest issues facing water today. The forum sees likeminded water companies share their learnings through never seen before trials, research, and disruptive thinking and groundbreaking technology on a global scale.





Thank you!



QUERIES & MORE INFORMATION

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kelly.hill@isleutilities.com

twitter

email

