
eps
Oct 23rd 2018
Innovation in Practice
Rethinking Energy
- Benny McDonagh
Rethinking Water

Locations

- 500 employees
- 25 % of PE
- €550m of Water Assets
- 300 + Operational Sites
- Turnover € 85 M


Domestic

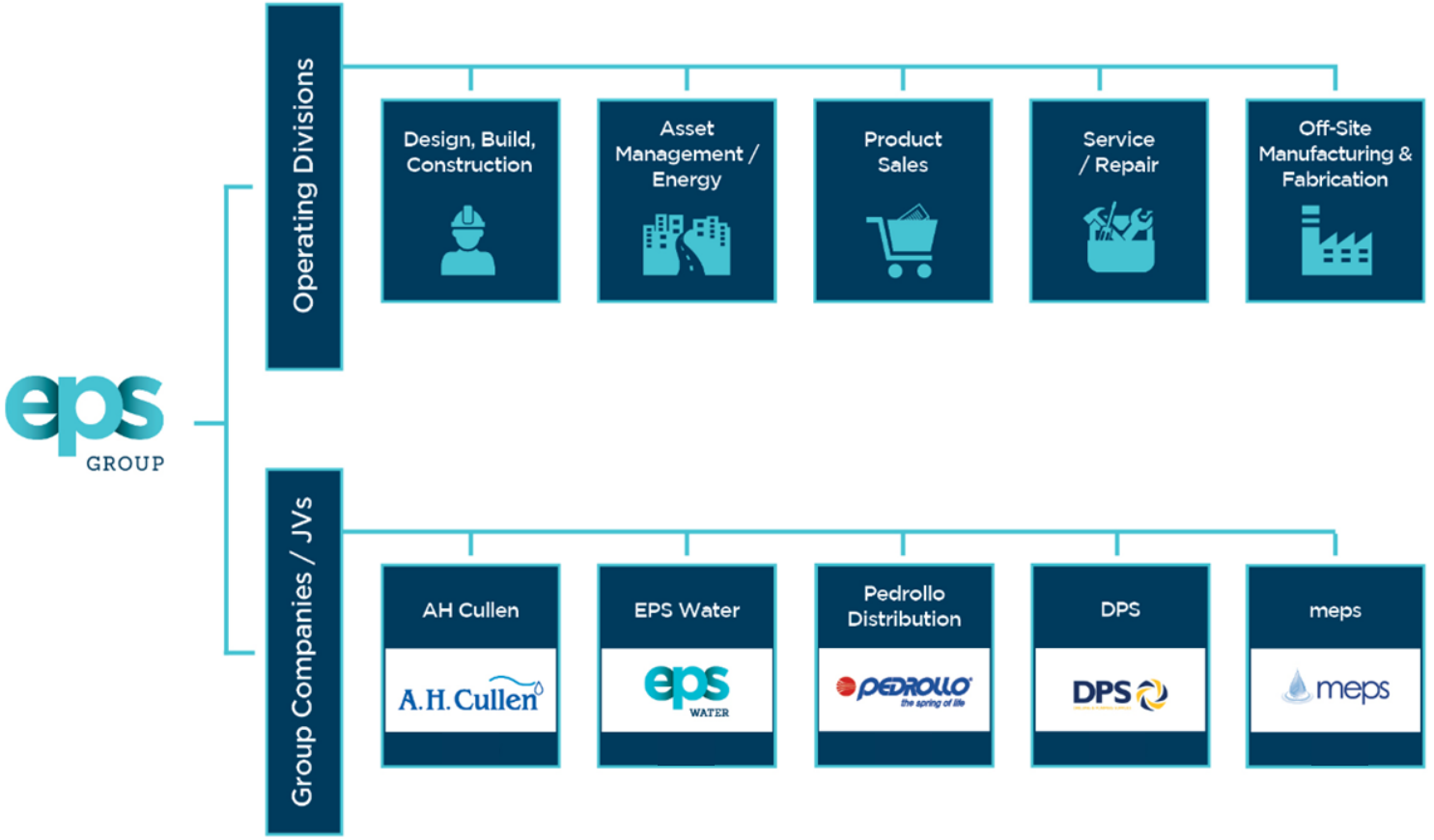

Municipal


Industrial


Agricultural


Commercial

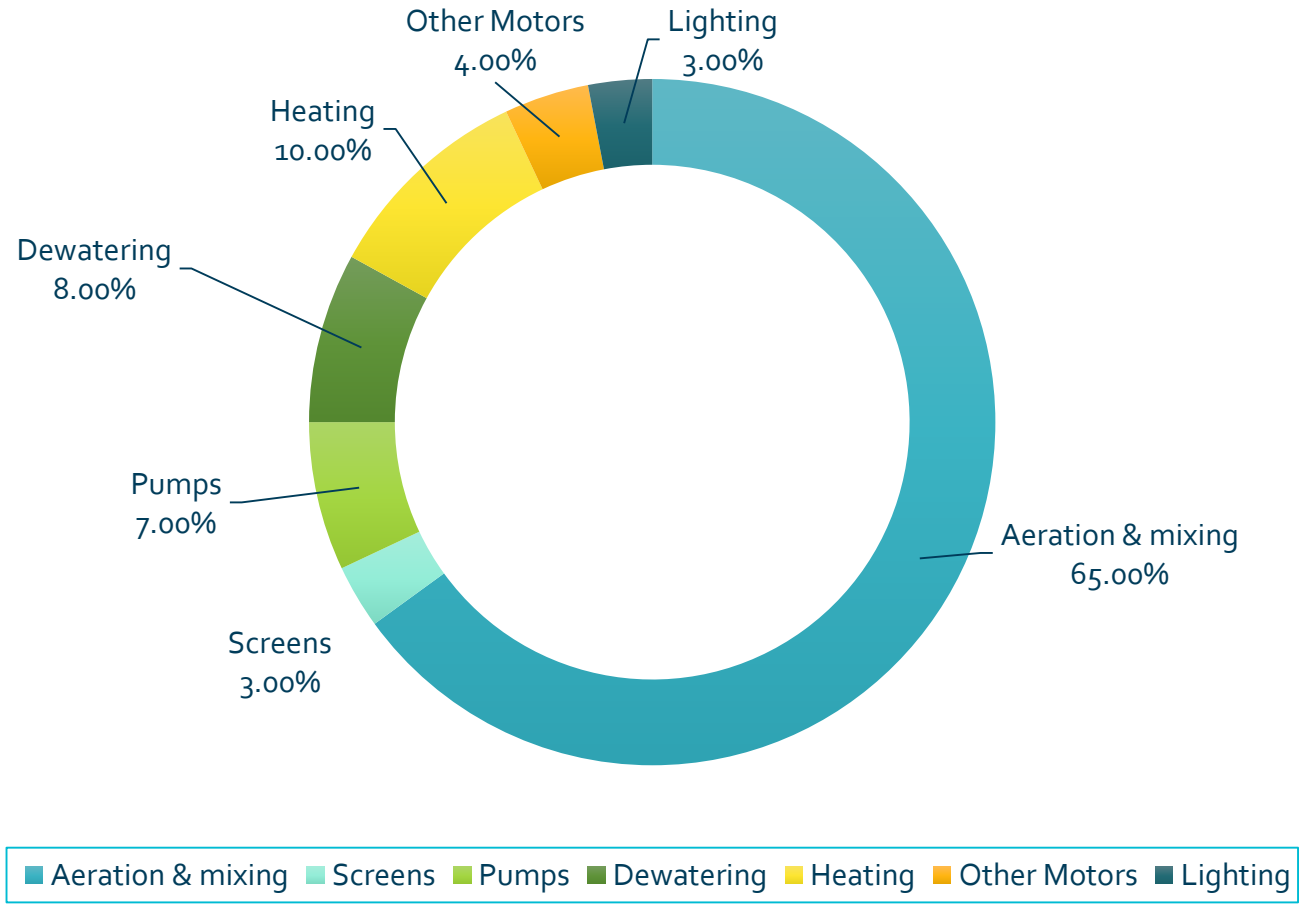
Company Divisions



Our Goal -
To be the most sustainable company in our Industry

ENERGY	CARBON	CSR
• Target 2.5% per years • Achieved 15% reduction in 8 years • 23,774,736 kWh saved in the BE Schemes.	• Target 10% reduction in emission intensity over 5 years • 25% achieved in 8 years • 20,888 tonnes of Carbon Saved in the BE Projects • Introduction of ERP system inclusive of environmental and sustainability metrics	• Small rural communities • Skills, training & employment – STEM • 4 % revenue equivalent ring-fenced for our CRS agenda

Typical electricity use in a WWTP

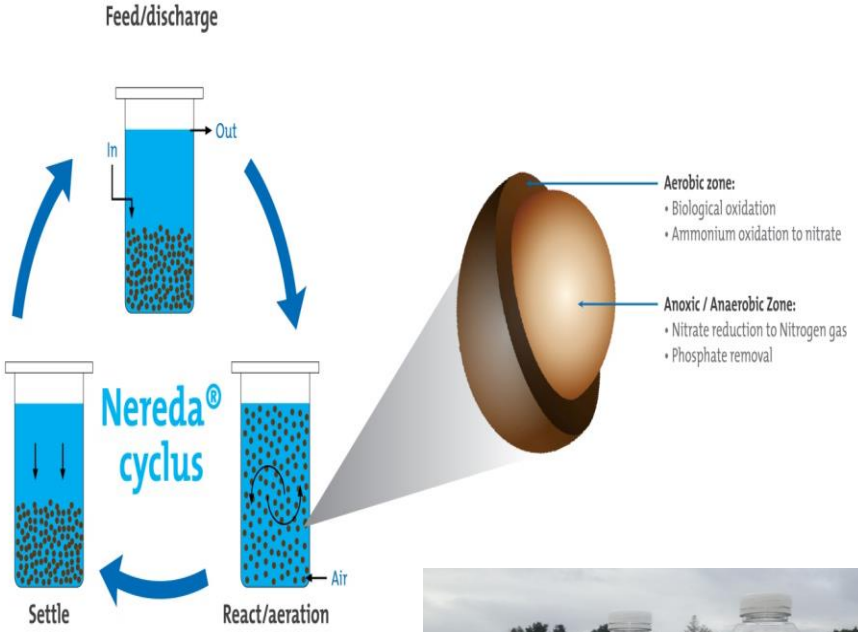


Nereda – Award Winning Technology

Clonakilty

Cork Lower Harbour

Carrigtwohill



Nereda® is a new and innovative technology used in the treatment of wastewater

The technology can treat four times the capacity of a comparative (SBR), in combination with significantly lower investment and operational costs:

1. 75% smaller plant footprint
2. energy savings (30-45%).

This state of the art technology is set to displace the century old activated sludge process that forms the basis for most modern wastewater treatment plants worldwide.

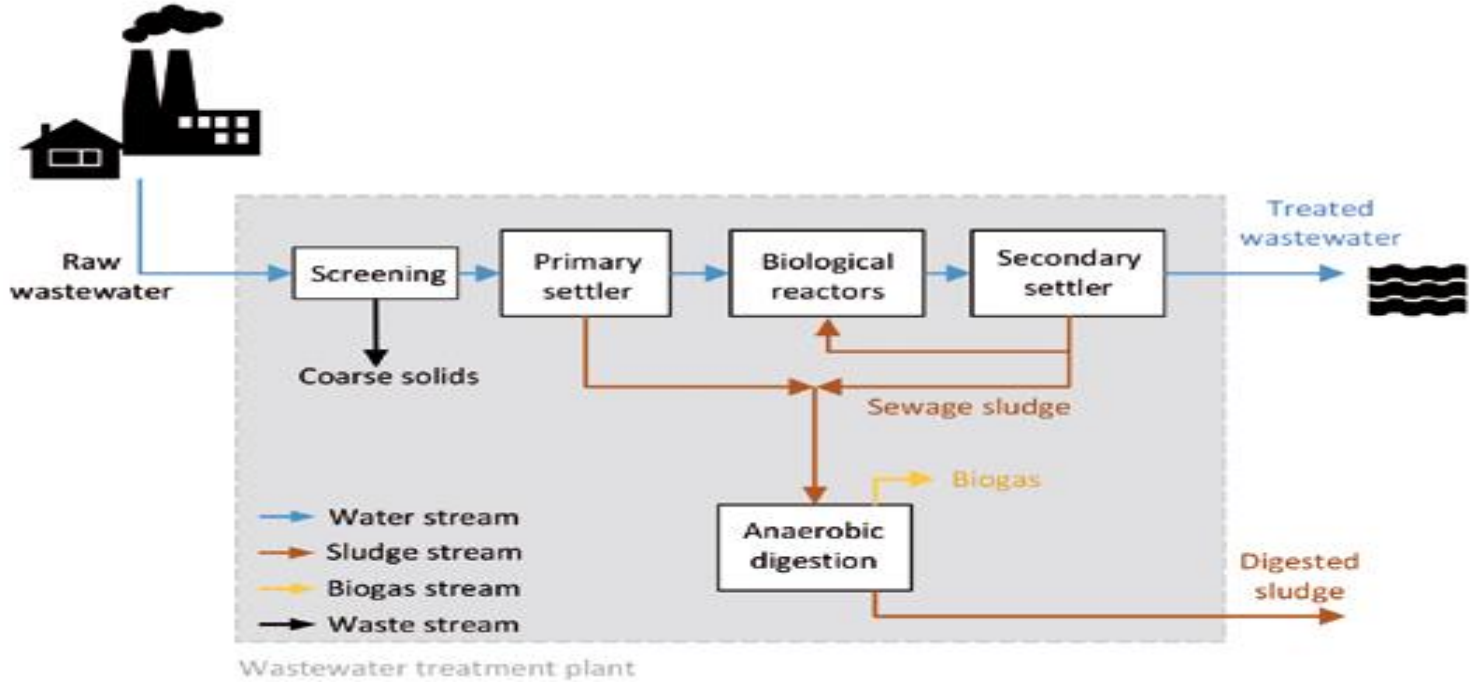
Off-Site Construction

- Delivering modular and Off-Site components and complete plants.
- Increasing the quality assurance & reduction of carbon footprint.
- Providing certainty of delivery for clients

Off-Site Construction - Examples

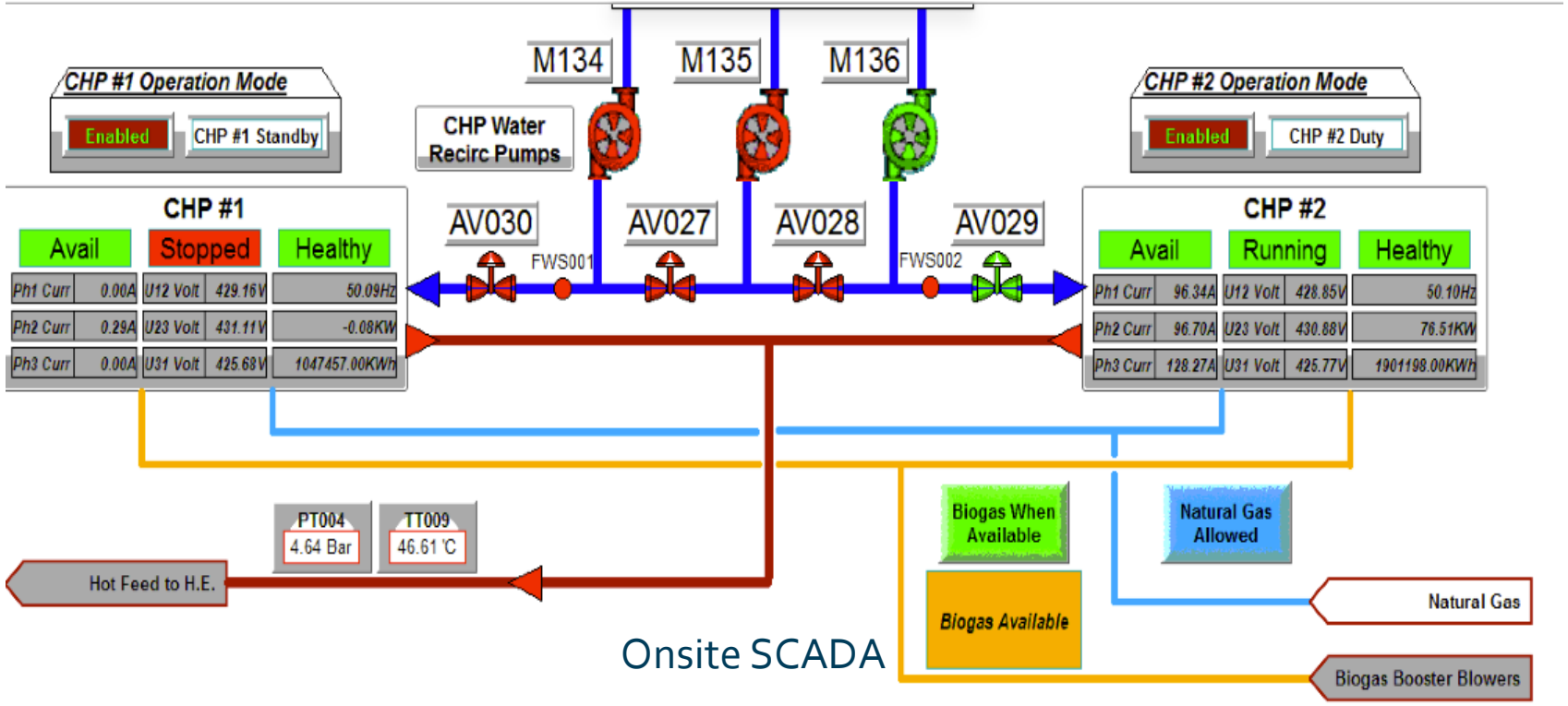
Off-Site Construction - Examples

Anaerobic Digestion



Process Optimisation

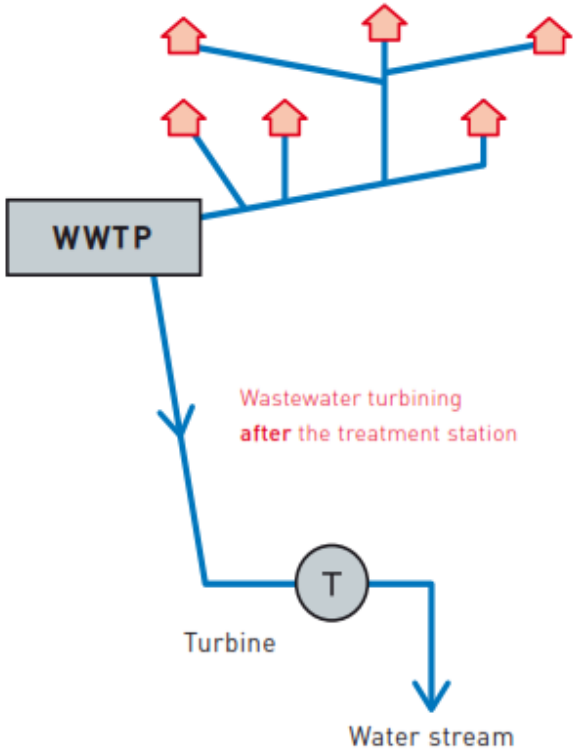
- Aeration controls
- Log run hours
- kWh



Onsite SCADA

"Sweating" the assets

Pump as Turbine

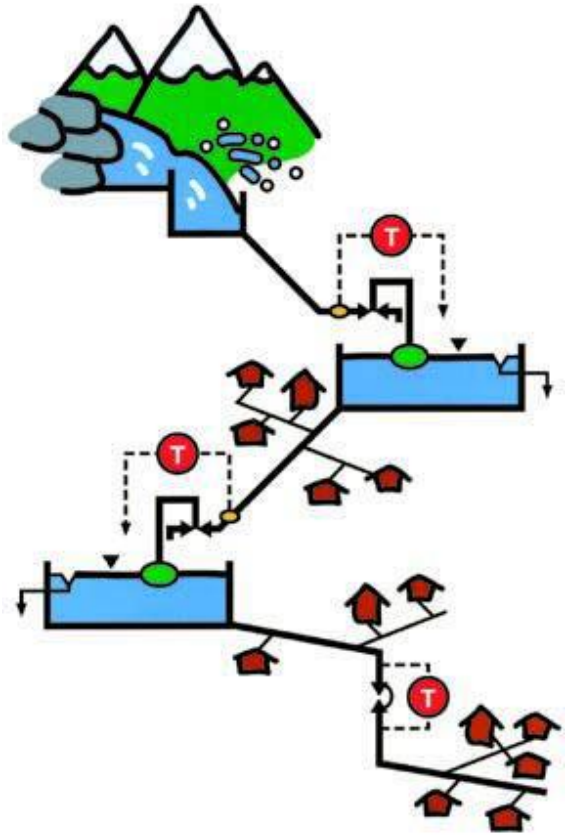


Drogheda

Power 14 kW annual output = 122,640 kWh

43 tonnes CO_2/yr.

€20,112 annum

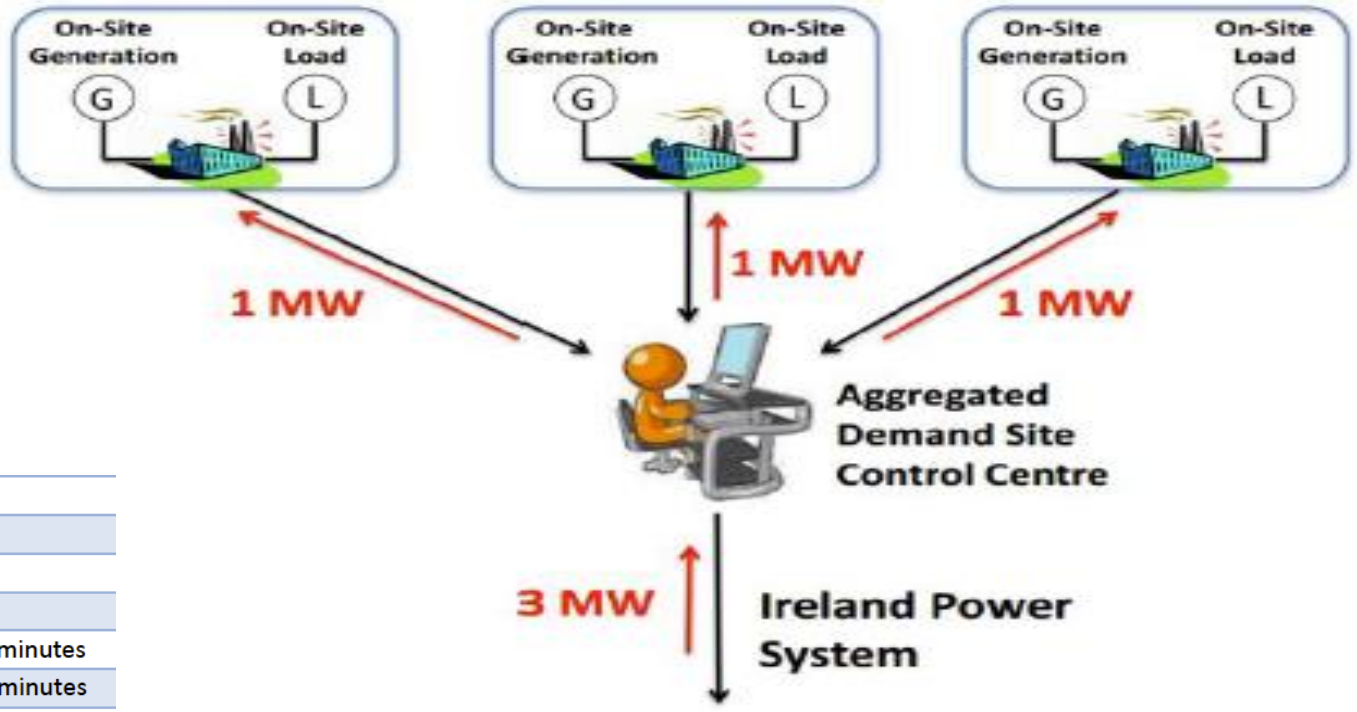


Renewables

- 1000kWh/ kWp
- 40 acres identified
- 8 MW System Aggregated
- 25% electrical consumption
- 8 GWh (8,000,000 kWh)

Demand Side Management

1 MW potential



Title	Abbr.	Description
Fast Frequency Response	FFR	MW Delivered between 2 & 10 seconds
Primary Operating Reserve	POR	MW Delivered between 5 & 15 seconds
Secondary Operating Reserve	SOR	MW Delivered between 15 & 90 seconds
Tertiary Operating Reserve 1	TOR1	MW Delivered between 90 seconds to 5 minutes
Tertiary Operating Reserve 2	TOR2	MW Delivered between 5 minutes to 20 minutes
Replacement Reserve DeSynch.	RRD	MW Delivered between 20 minutes to 1 hour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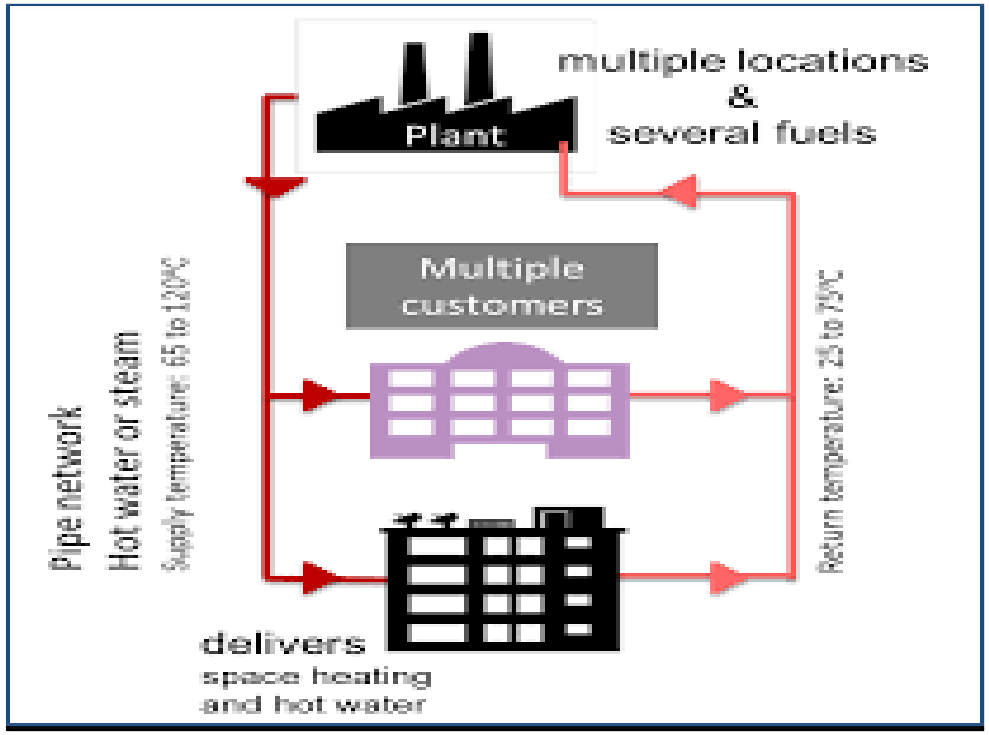
Rethinking Water
Next Steps

Heat Recovery

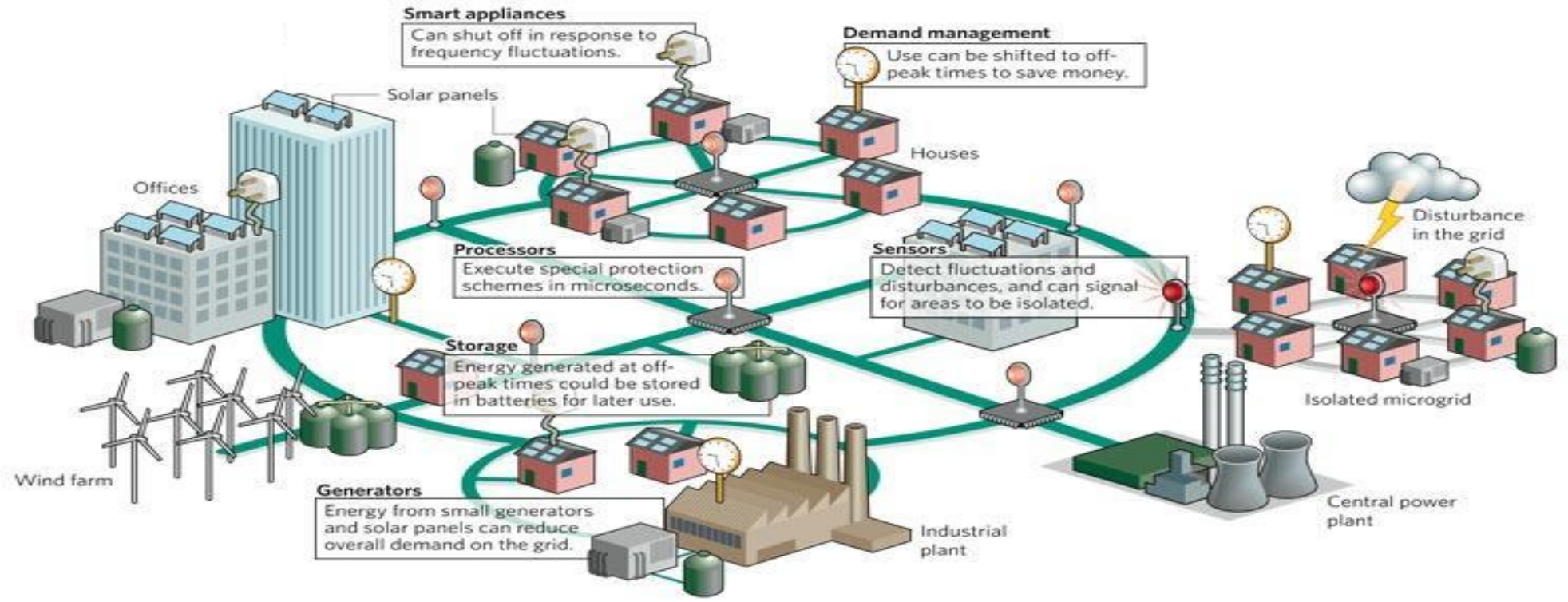
- Municipal heat recovery- district heating

- Industry 60◦
- Consent 25◦

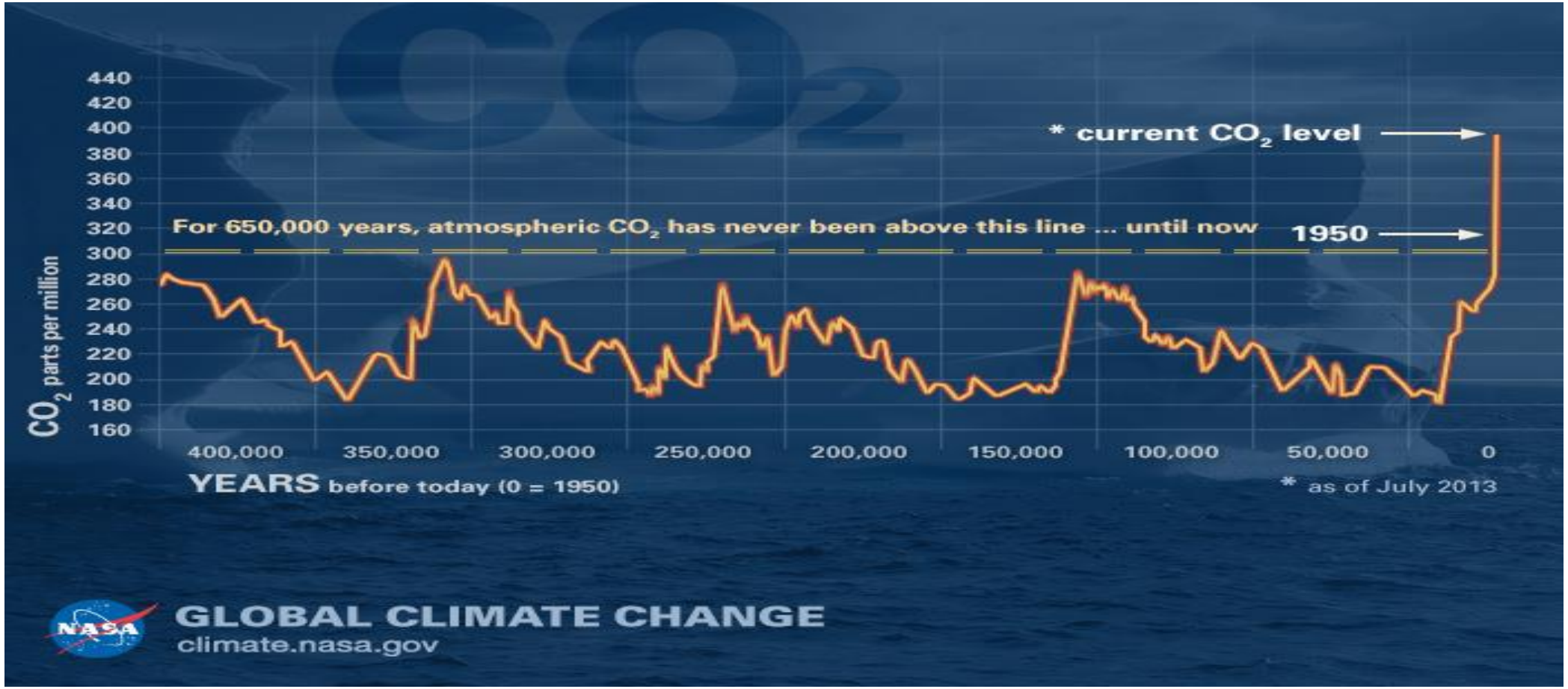


Nearly Zero Energy Buildings - NZEB

The Future of Energy Flows



Why? Global Climate Change



Thank you for listening!

Rethinking Water