

# WIPO GREEN SYMPOSIUM

ACCELERATING THE IMPERATIVE:  
GREEN TECHNOLOGY DEPLOYMENT

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NEOM

# THE ROLE OF WATER IN GREEN INITIATIVES



INTEGRATED  
DESALINATION WITH  
BRINE PROCESSING



WASTEWATER RECYCLING  
&  
ZERO-LIQUID DISCHARGE



REGREENING  
&  
REBLUEING

**WATER POSITIVITY IS AS IMPORTANT AS CARBON EMISSIONS**

# INTEGRATED DESALINATION + BRINE PROCESSING



MEMBRANE technologies – selective for chemical and mineral removal



Production of chemicals used in water treatment and for sale



Improve recovery – intake reduction



Energy reduction



Land preservation



Water positivity



No effluents to the sea



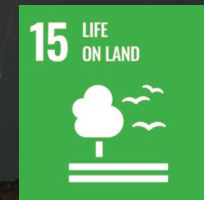
Carbon reduction – not returned to the sea



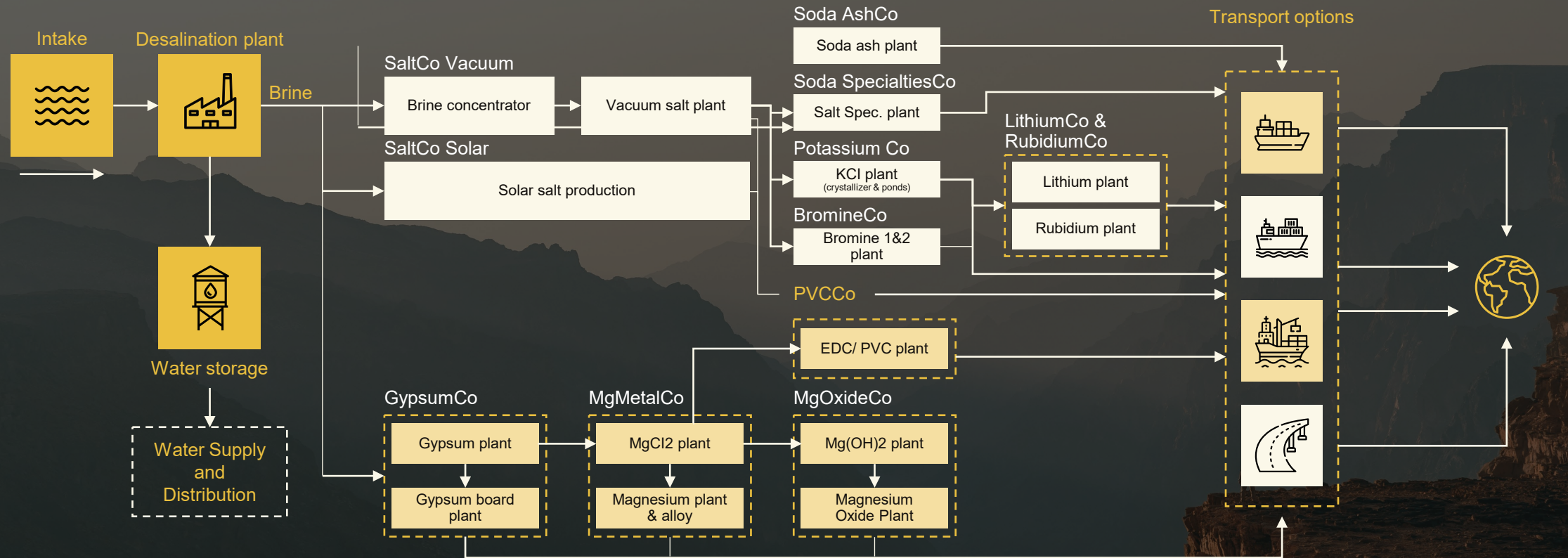
Circular Economy



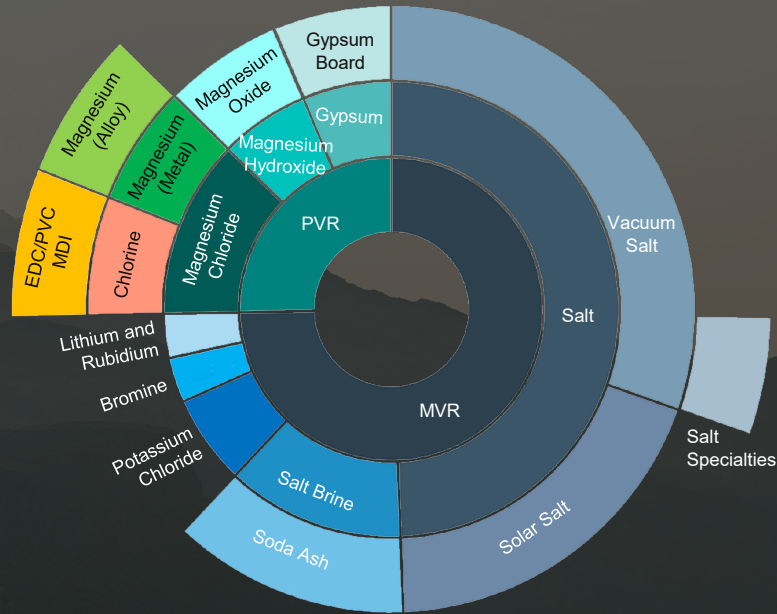
Recovery of Antiscalant treatment chemicals



# BRINE PROCESS DESIGN

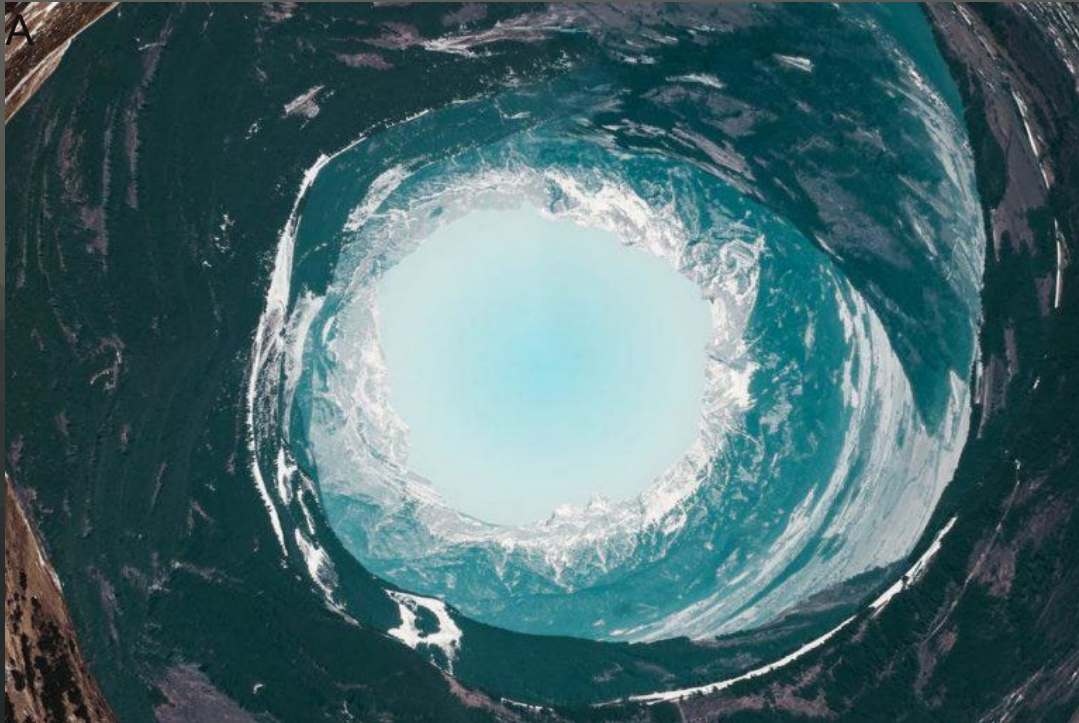


# BRINE CO-PRODUCTS



PRODUCT CO	CO-PRODUCT	PRODUCTION	SALEABLE PRODUCTION
		t/yr	t/yr
Salt Co	NaCl (Vacuum)	5,040	4,540
Salt Co	NaCl (Specialties)	500	500
Salt Co	NaCl (Solar)	3,800	3,800
Bromine Co	Br <sub>2</sub>	11	11
Potassium Co	KCl	300	300
Gypsum Co	Gypsum	1,820	1,470
Gypsum Co	Gypsum Board	350	350
Mg-Metal Co	Mg 99%	188	138
Mg-Metal Co	Mg Alloy	56	56
MgO Co	MgO (CCM)	346	112
MgO Co	MgO (DBM)	113	113
MgO Co	MgO (FM)	113	113
EDC / PVC Co	EDC (Direct)	593	TBD
EDC / PVC Co	PVC	892	892
EDC / PVC Co	MDI	200	200
Soda-Ash Co	Soda Ash	1,478	1,391

# WASTEWATER RECYCLING & ZLD



Move to zero-cost wastewater treatment

- Biosolid reuse
- Biogas recapture (energy generation)
- Reuse of recycled water



Advanced membrane technologies can treat different types of Water Effluents

Circularity, Sustainability, Renewable Energy

# A GLOBAL LEADER IN WATER RECYCLING

NEOM IS MOVING FROM LINEAR TREATMENT & DISPOSAL TO CIRCULARITY & RESOURCE RECOVERY

## ZERO ENERGY



### 100% collection and treatment

Collect and treat all wastewaters through dedicated Smart networks and treatment plants

## ZERO TREATMENT COST



### Zero environmental run off

We have zero run off water to the environment

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Our wastewater collection and treatment facilities are environmentally sustainable

## ZERO WASTE



### 100% Wastewater reuse

We will reuse all wastewater through Smart reuse networks

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Our recycled water has value, and we will use it to support our construction activities and to serve our communities

## ZERO DISCHARGE



### Energy and material recovery

We have maximized resource recovery using best available technologies to minimize waste

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We fully support regional resource availability for nature and society (biosolids to land)



### Innovation

Pilot and implement innovative technologies

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Innovation aligned to key strategic drivers



### Iconic design

Develop world class architectural concepts for treatment plants

# REGREENING & REBLUEING

## TEMPERATURE REDUCTION & CO<sub>2</sub> ABSORPTION



- Desal water with renewable energy



- Environmental greening drops surrounding temperature by **3 to 5°C**



- Water features further reduce air temperature



- NET REDUCTION IN GLOBAL TEMPERATURE



THANK YOU



NEOM