



 VEOLIA



WATER



VEOLIA
Korea



WASTE

May 2016



ENERGY



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1. Veolia Group

- *World Leader in Environmental Services*
- *Our experience : 160 years of industrial history*
- *Our commitments to sustainable development*

World Leader in Environmental Services



2015 Revenue: € 24.96 billion*

173,959 employees



Water Services

€11.34 billion
(+1.0% vs.2014)



Waste Management & Resource Recovery

€8.69 billion
(+3.0% vs.2014)



Energy Services & Optimization

€4.92 billion
(+4.0% vs.2014)

1. Veolia Group

- *World Leader in Environmental Services*
- *Our experience: 160 years of industrial history*
- *Our commitments to sustainable development*

Our experience: 160 years of industrial history

1853

FOUNDING
of *Compagnie
Générale des Eaux*

2003

THE GROUP
is renamed
Veolia
Environnement

2014

**THE NEW
VEOLIA**
Resourcing the world

1853 – 1900

Drinking water is delivered to cities to meet the challenge of urbanization.



1900 – 1939

Wastewater services, waste treatment and access to energy expand on a large scale.



1945 – 1992

Environmental services provide support for reconstruction and the industrial growth.



1992 – 2013

A concern for sustainable development gradually emerges as a global priority.



2014 - ...

In the face of growing scarcity, **resource management** must be reinvented to create a new economic and social dynamic.



1. Veolia Group

- *World Leader in Environmental Services*
- *Our experience : 160 years of industrial history*
- *Our commitments to sustainable development*

Our commitments to sustainable development



R & I


- **850** experts worldwide
- **6** specialized international research centers
- **220** academic and industrial partners
- **250** pilot sites
- Over **2,000** patents

Our



Training

- **436,000** training courses
- **75.5%** of employees received training in 2015
- **More than 1 in 3 training hours** are devoted to health and safety every year.
- **20** training campuses in **10** countries
- **10%** Objective of reducing the accident frequency rate per year



Environmental data

- **CO₂** emissions reduced by the equivalent of **16 million** metric tons
- **6 million** metric tons of **CO₂** equivalent of avoided emissions
- **57%** of methane captured.

(2015 global data)

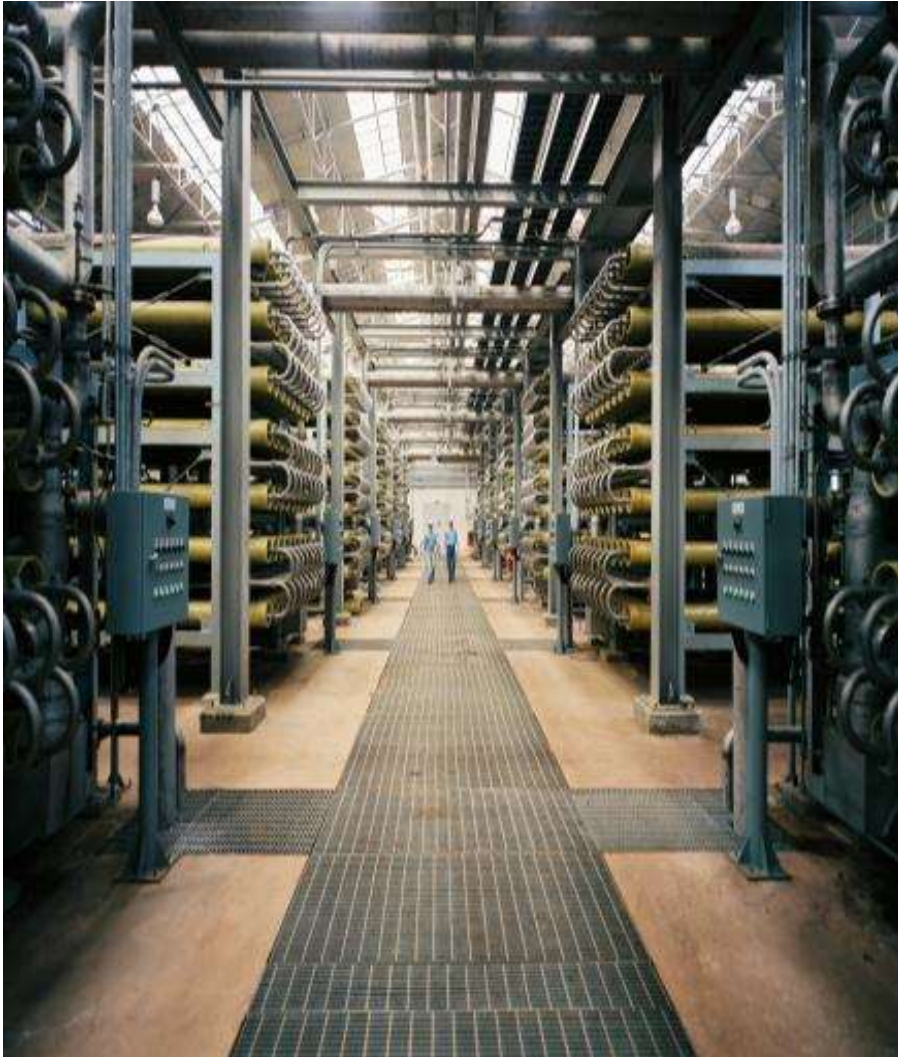
2. Veolia Korea

◦ *History*

◦ *3 Business Lines*

◦ *Corporate Social Responsibility (CSR)*

History



- Established in 1999 in Seoul
- 20 operational sites with 540 employees
- 9 industrial water contracts, 1 municipal wastewater service contract, 2 waste management companies and 2 energy service contracts
- Single Company name to Veolia in April 2014
- Veolia's commitment in Korea :
 - The ability to cover all aspects of environmental management:
water, wastewater, energy and waste business
 - Environmental services for municipalities and all industries:
Petrochemicals, microelectronics, automotives, food & beverages, metals, pulp & paper, power, oil & gas, Pharmaceuticals, etc.
 - IMS certificate for all operation sites

Awards & certifications

- **Dec 2001** Awarded **President citation** as one of the best foreign investment companies
- **Dec 2004** Awarded **Prime Minister citation** as one of the best foreign investment companies
- **Jul 2007** Achieved **IMS** (ISO9001, ISO14001, OHSAS18001) certification for *municipal projects in Songdo and Mansu, Korea*
- **Jul 2008** Achieved **IMS** (ISO9001, ISO14001, OHSAS18001) certification for *all industrial projects in Korea*
- **Dec 2009** Awarded **MOE** (Ministry of Environment) citation for environmental contribution
- **June 2011** Achieved **IMS** (ISO9001, ISO14001, OHSAS18001) certification for *Seoul HQ office*
- **June 2014** Achieved **IMS** certificate for *all water projects in Korea*



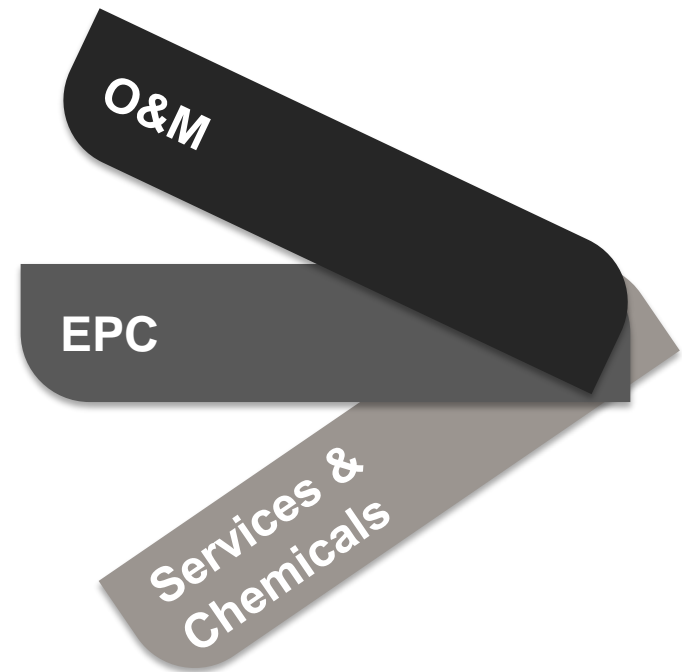
2. Veolia Korea

o History

o 3 Business Lines

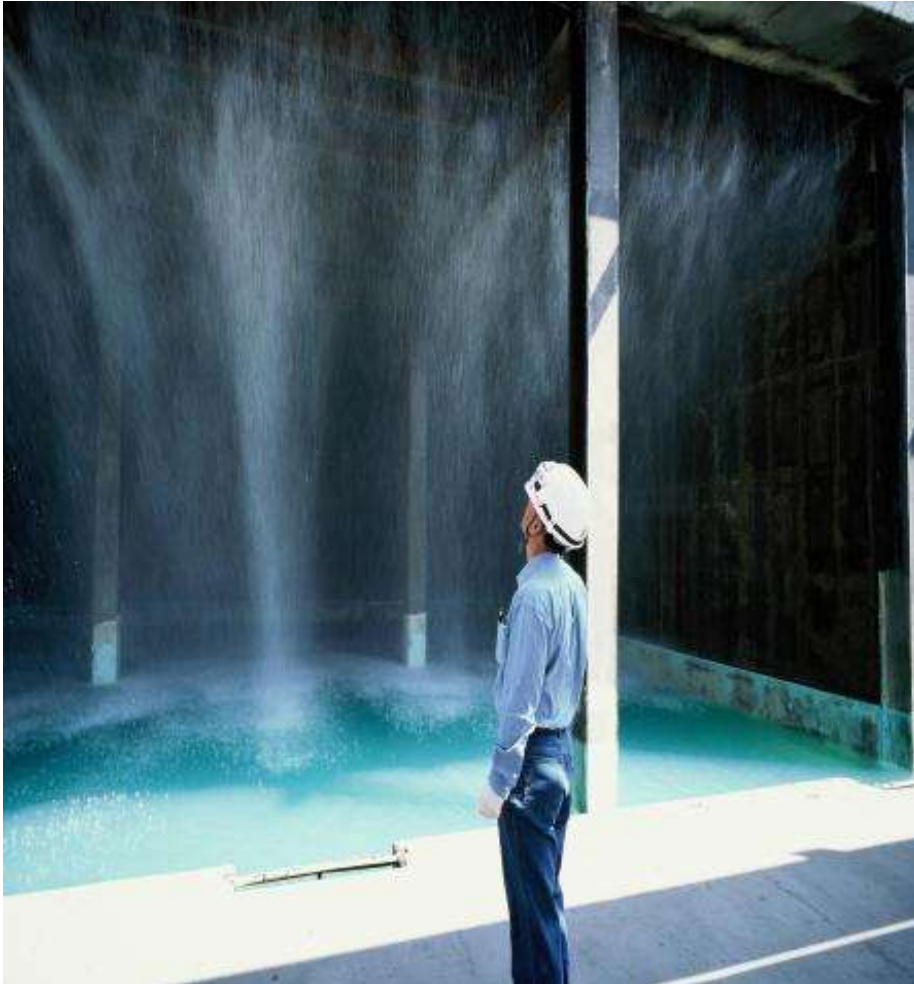
o Corporate Social Responsibility (CSR)

3 Business lines in Korea



Veolia provides *integrated solutions* for water & wastewater, waste and energy services

3 Business lines – Water Management



- o **Water and wastewater management for**
 - Industrial clients:
 - o *Supplying and treating process water, cooling water, RO, demi water, boiler feedwater, UPW and wastewater*
 - o *Operating and maintaining treatment facilities*
 - o *Managing solids (sludge), recycling/reusing water and recovery of materials in wastewater*
 - municipalities:
 - o *Collecting and treating wastewater*
 - o *Operating and maintaining WWTP and its energy self-sufficiency*
 - o *Treating sewage sludge, recycling/reuse wastewater*
 - o *CSO management*
- o **Design & construction** of technological advanced solutions for the provision of water services
- o Providing **total solutions & services** for added value

3 Business lines – Water Management



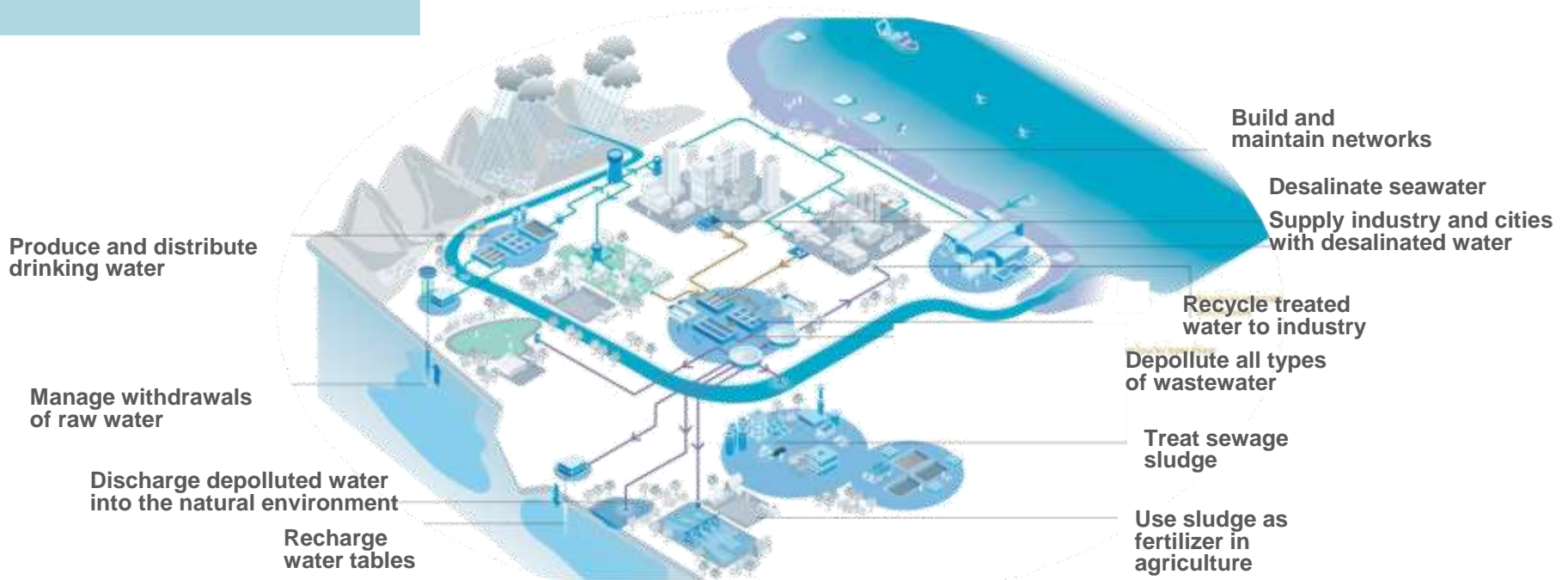
Global key figures

€11.34 Bil in revenue

100 Mil people supplied with drinking water

63 Mil people connected to wastewater systems

VEOLIA Manages the water cycle
With a focus on saving and protecting resources



3 Business lines – Waste management



- Production of **energy, organic and raw materials from waste**
- **Waste plastic recycling** (SRF Production, Recycling to plastic flakes)
- **Waste management and logistics** for municipalities and industrial clients (maintenance, cleaning, sewer cleaning, collection and transfer)
- **Sorting, treatment and recycling services** for hazardous & non-hazardous waste by incineration, composting, landfilling & physical-chemical treatment
- **Biogas** generation

3 Business lines – Waste management



Global key figures

€8.69 Bil in revenue

39 Mil inhabitants served

42.9 Mil metric tons
of treated waste

VEOLIA is the only global operator offering
The complete range of the waste management services



3 Business lines – Energy management



- **Energy management:** district heating and cooling
- **Industrial energy services:** steam and electricity supply
- **Energy efficiency and renewable energy**
- **Integrated facilities management**
- **Design, build, operation & maintenance** of combines heat & power (CHP) and utilities plants
- **Reduction in carbon footprint** through biomass, cogeneration and energy recovery

3 Business lines – Energy management



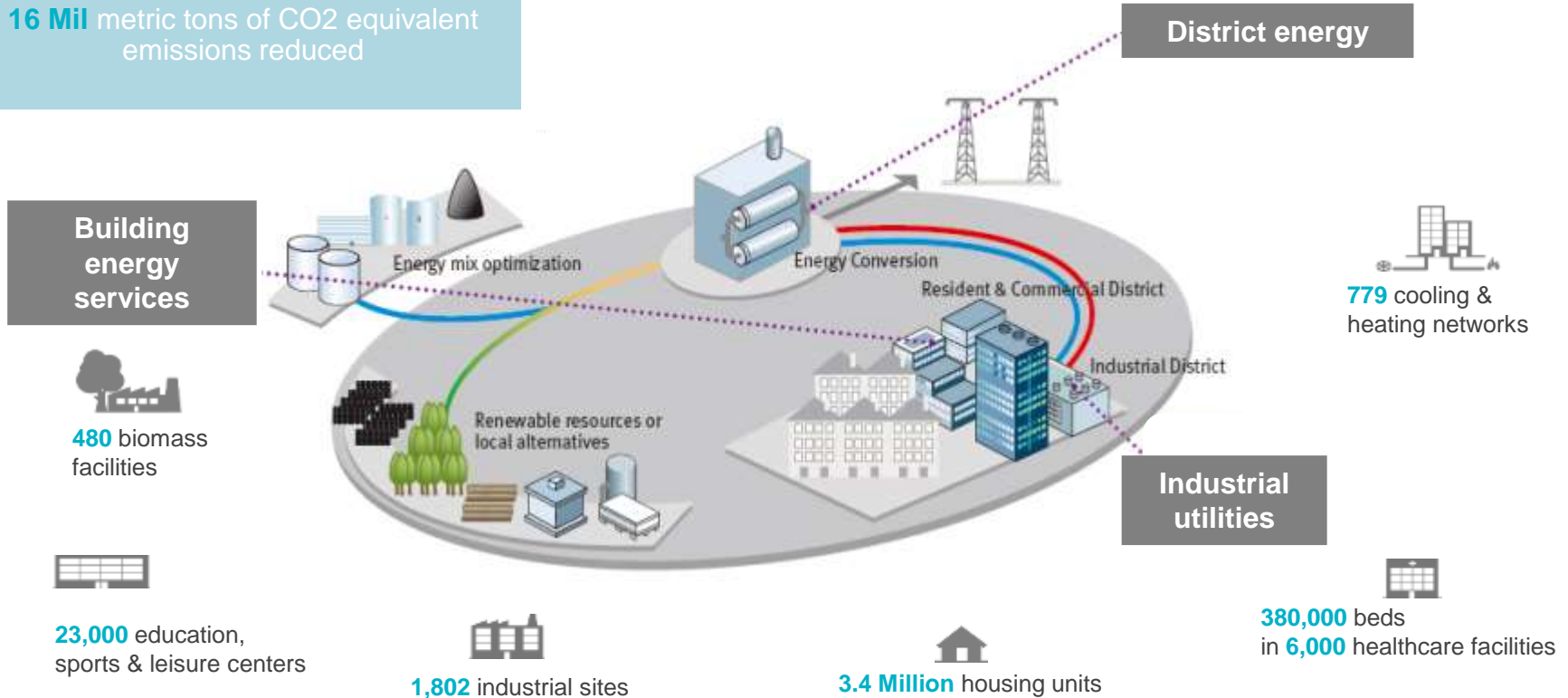
Global key figures

€4.92 Bil in revenue

53 Mil MWh generated

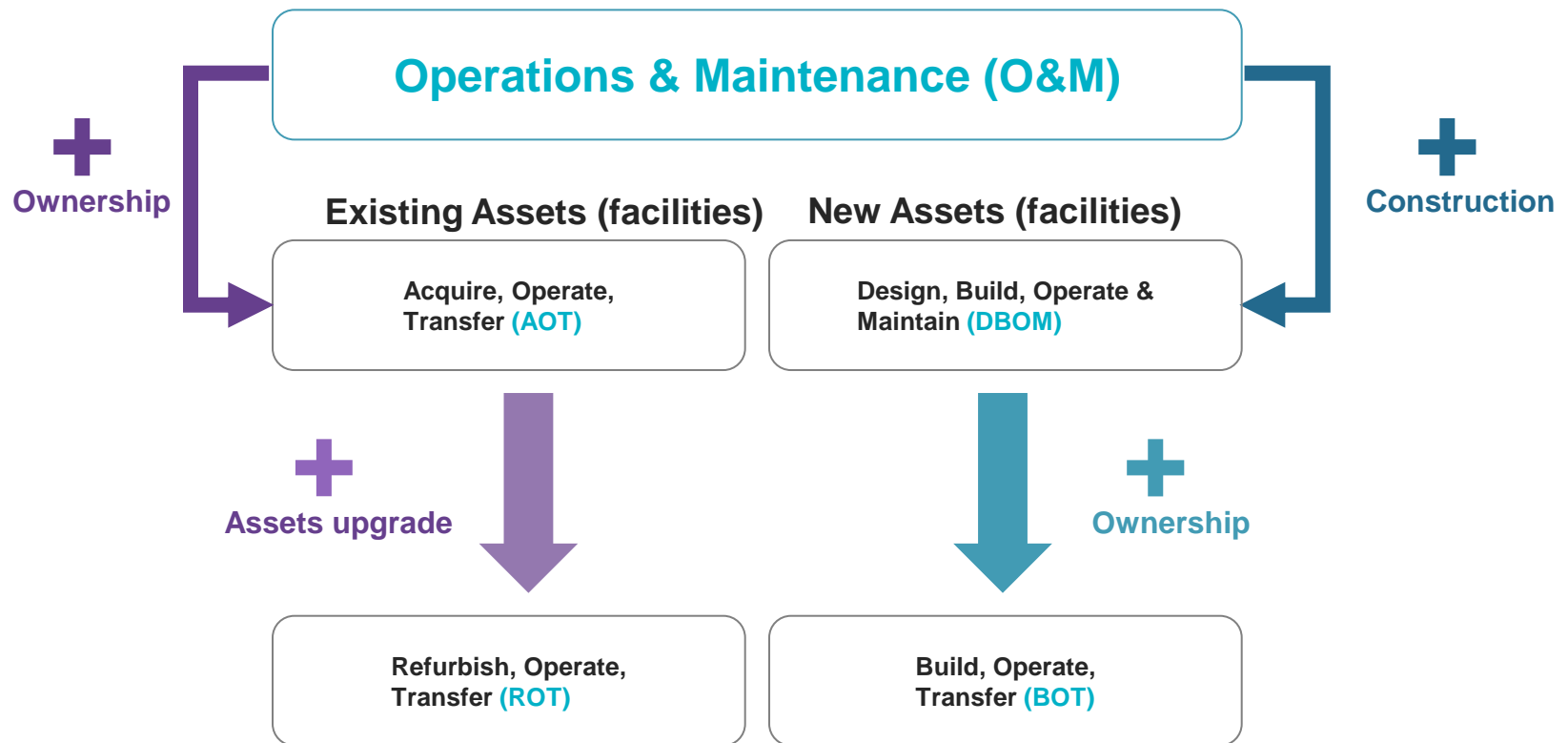
16 Mil metric tons of CO2 equivalent emissions reduced

The benchmark in regional energy savings



3 Activities: O&M

Providing Tailor-Made Contractual Solutions

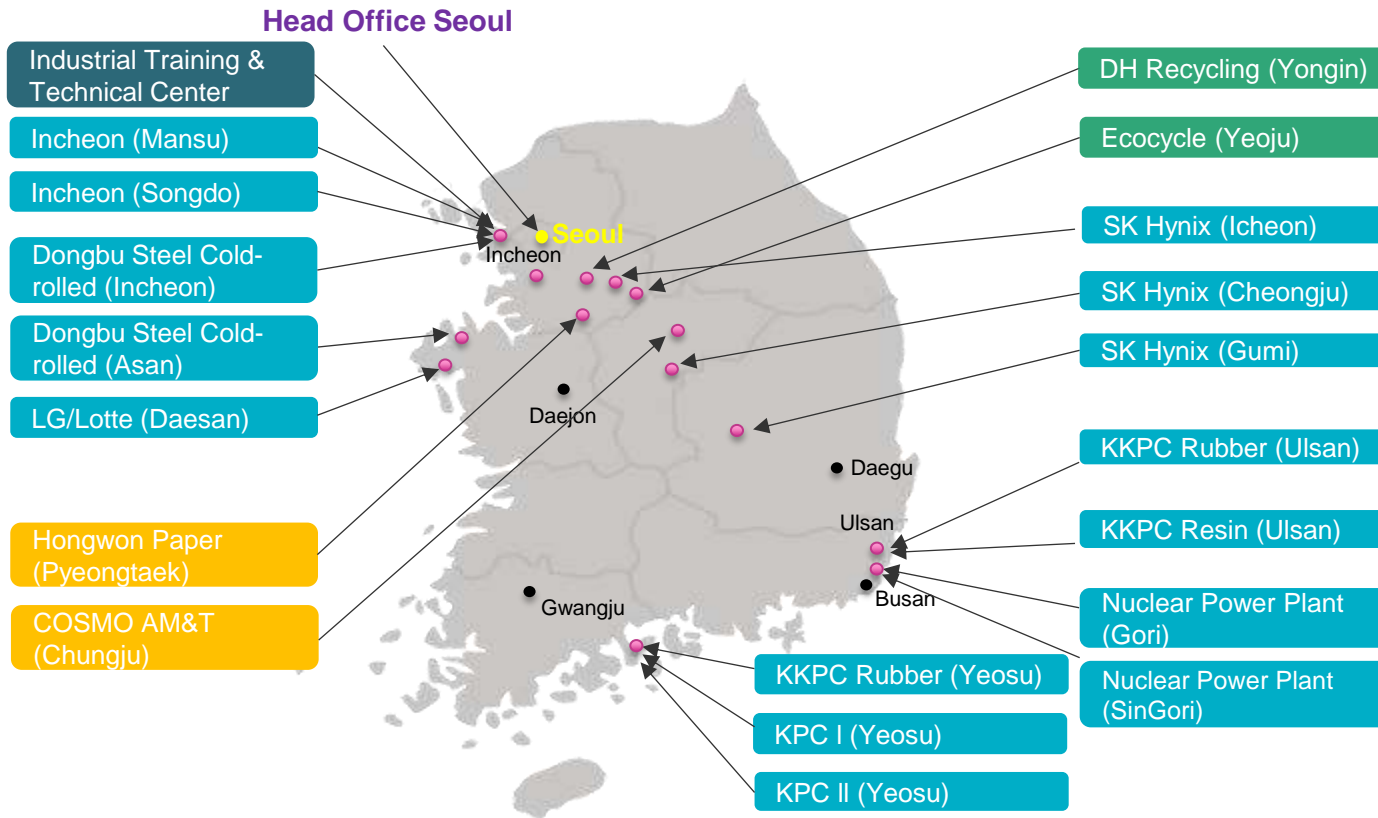


3 Activities: O&M

- Over 540 employees in 20 sites

Legend

- Waste
- Water
- Energy







KKPC: Korea Kumho Petrochemical Corporation
 KPC: Kumho Polychem





3 Activities: O&M water services in Industrial sector - 1

Client	Contract start & duration	Contract type	Capacity
	Mar 2000 (20 years)	Acquire, O&M, Transfer (AOT)	<ul style="list-style-type: none"> • Demi Water : 41,120m³ /d • RO Water : 84,000m³/d • Cooling Water : 1,861,224m³/d • Domestic Water : 5,235m³/d 
	Mar 2001 (17 years)	Acquire, O&M, Transfer (AOT)	<p>3 sites: Icheon, Cheongju & Gumi</p> <ul style="list-style-type: none"> • Ultra Pure Water : 100,440m³/d • Wastewater treatment : 34,880m³/d • Water treatment : 102,000m³/d 
	Mar 2010 (15 years)	Acquire, Operate, Transfer (AOT)	<p>Asan Bay & Incheon Cold Rolled Plant</p> <ul style="list-style-type: none"> • RO water : 10,000m³/d • Cooling water : 220,000 m³/d • Wastewater : 8,000m³/d 

3 Activities: O&M water services in Industrial sector - 2

Client	Contract start & duration	Contract type	Capacity	
KUMHO POLYCHEM	Oct 2005 (15 years)	Operate, Maintain (O&M)	Yeosu KPC 1 <ul style="list-style-type: none"> • Cooling Water: 181,200m³/d • Wastewater treatment: 2,640m³/d • Water treatment: 3,600m³/d 	
	May 2013 (Same as KPC 1)		Yeosu KPC 2 <ul style="list-style-type: none"> • Cooling Water: 144,000m³/d • Wastewater treatment: 3,600m³/d • Water treatment: 4,152m³/d 	
KUMHO PETROCHEMICAL	Oct 2004 (15 years)		Yeosu Rubber <ul style="list-style-type: none"> • Cooling Water: 514,800m³/d • Wastewater treatment: 5,180m³/d • Water treatment: 6,000m³/d 	
	Dec 2005 (15 years)		Ulsan Rubber <ul style="list-style-type: none"> • Cooling Water: 352,800m³/d • Wastewater treatment: 13,000 m³/d • Water treatment: 11,520m³/d 	
	Apr 2007 (15 years)		Ulsan Resin <ul style="list-style-type: none"> • Cooling Water: 143,976m³/d • Wastewater treatment: 5,300m³/d • Water treatment: 6,000m³/d 	
	Oct 2014 (3 years)		<ul style="list-style-type: none"> • Treated water: 10,582 m³/d • Seawater Electrolysis: 8,654 m³/d • Condensate Polishing: 145,976 m³/d • Wastewater treatment: 3,906 m³/d 	





3 Activities: O&M water services in Municipal sector

Client	Contract start & duration	Contract type	Capacity	Technologies
 인천광역시 Incheon Metropolitan City  SAMSUNG 삼성엔지니어링	Dec 2001 (20 years) Operation start : Apr 2005	Build, Transfer, Operate (BTO)	100,000m³ treated per day <i>Mansu: 70,000m³/d,</i> <i>Songdo: 30,000m³/d</i>	<p>Mansu Plant: Azenit™ -P Wastewater treatment by activated sludge Enhancing the removal of carbon, nitrogen and biological phosphorous pollution</p>  <p>Songdo Plant: Biostyr™ Compact biological technology Perfect for facilities where space is limited</p> 

1st PPP (Public-Private Partnership) for a foreign company in wastewater service sector





3 Activities: O&M waste services in Industrial sector

o Plastic Recycling

Project	Partner	Operation start	Capacity	Client sectors
	100% owned by Veolia Korea	Feb 2007	<u>RPF:</u> 20,000ton/yr <u>Fluff SRF:</u> 50,000ton/yr	Cogeneration plants, paper mills, cement industry 
	Joint Venture between Veolia Korea (51%) and Daehan Environment (49%)	Aug 2014	<u>Plastic waste treatment:</u> 20,000ton/yr <u>Recycled plastic flake production:</u> 15,000 ton/yr	Municipal collection center apartment complex & plastic manufacturing Company 

3 Activities: O&M energy services in Industrial sector









- Energy Service

Client	Operation start	Contract type	Capacity & service scope
 <p>HONGWON 홍원제지(주)</p>	November 2014 (10 years)	Acquire, Operate, Transfer (AOT)	Boiler equipment operation & maintenance, Steam supply: 1,200 ton/d 
 <p>COSMO</p>	November 2014	Acquire, Operate, Own (A00)	Boiler equipment operation & maintenance, Steam supply: 528 ton/d 





3 Activities: Engineering · Procurement · Construction (EPC)

- Design, build and upgrade water facilities and systems for public authorities and industrial clients
 - *Deliver engineering standard equipment to turnkey design & build projects*
- All-encompassing range of solutions and technologies to leverage the value of water, waste and energy resources
 - *Treat or reuse wastewater & waste,*
 - *Extract raw materials from waste & wastewater*
 - *ZLD (Zero Liquid Discharge)*
 - *Produce or recovery energy*
- Sustainable solutions for added value
 - *Over 350 proprietary technologies*

3 Activities: EPC references in Industrial sector

Client	Contract award	Project	Capacity	Scope of Project
	May 2008	WT & WWT for Campiche 242MW Coal Fired Power Project(Chile)	Demi Water : 1,200m ³ /d, WWT : 550m ³ /d	Engineering, Supply, Programming, Commissioning 
 (Under SUEZ-Tractebel S.A.)	Jul 2010	OMAN Sohar2 & Barka3 IPP Project	Water : 3,552m ³ /d, Wastewater : 240m ³ /d	Engineering, Supply, Supervisor of Commissioning 
 VEOLIA Oil & Gas	Dec 2011	Petro Bataan RMP 2 Project	16,800m ³ /d	Engineering, Supply, Supervision of Commissioning 
	Jun 2012	Soluble Emersion Oil treatment	10m ³ /day	Evaled™ RV Series TC10000 

3 Activities: EPC references in Municipal sector

Client	Contract award	Project	Capacity	Scope of Project
DAELIM	Dec 2011	Gwangju T-P Removal	659,000 m ³ /d	Engineering, Supply, Installation, Commissioning for Actiflo™ systems 
	Aug 2012	Saemankeum CSO	30,000 m ³ /d	Engineering, Supply, Installation, Commissioning for Actiflo™ systems 
DAELIM	Oct 2014	Godeok Industrial Complex Tertiary Treatment facility	102,000 m ³ /d	Engineering, Supply, Installation, Commissioning for Actiflo™ systems 
Geoje City new	2015	Geoje energy self-sufficient project	40 ton/day as 20% DS	Exelys™ with mesophilic anaerobic digestion – sludge reduction
Yeosu City new	2015	Yeosu energy self-sufficient project	47.6 ton/day as 20% DS	Exelys™ with mesophilic anaerobic digestion – sludge reduction & replacement of LNG for sludge dryer

3 Activities: Service activities

Services

- **Advanced water treatment total services**
 - *Under water robot cleaning service*
 - *Full on-site audits for process water optimization*
 - *Pilot and water analysis service with VITTC (Veolia Industrial Technical & Training Center) located in Songdo*
 - *AquaVista including SCADA*
 - *Diagnosis for whole water system*

Consumables

- **HYDREX™ Chemical services**
 - *Tailor-made formulation chemical of water system for industries & municipalities*
- **Standard products**
 - *Aquafab, Endetec (Tecta™/Kapta™)*
- **Supply spare parts**
 - *UV system, Activated Carbon, Micro-sand, Membranes*
 - *All of spare parts for water system*



Robot cleaning



Hydrex™



Lab analysis

ITTC (Veolia Industrial Training & Technical Center)

- Opened in October 2013 located in Songdo
- Entirely dedicated to industrial services
 - *Industrial hub for equipment and process testing for operational optimization, business development for prospects to demonstrate its showcase solutions to potential clients*
 - *Providing water quality analysis*
 - *Enhancing competency training in specialized industrial fields*
- Facilities and equipment
 - *Two story eco-friendly building located in the area or 3,300m² is equipped with an auditorium, integrated water quality laboratory, and water treatment pilot plant hall specialized in industrial operations.*
- Co-work with local community and educating students



2. Veolia Korea

o History

o 3 Business Lines

o Corporate Social Responsibility (CSR)

Corporate Social Responsibility (CSR)

Raising awareness of importance on Environment

- **Public Education :**
Experimental tool related in water for children developed by Veolia in 1995
- **Site Tour :**
Tour on water treatment plant for students, local organizations, citizens to educate water treatment



Clean - up campaigns

- **Organizing environmental volunteering campaigns** as opportunities to contribute to the community where Veolia operates



Local Community Charity

- **Sustainable support** by visits and donations to help people in need





Thank you!

Resourcing the world  **VEOLIA**

www.veolia.co.kr

