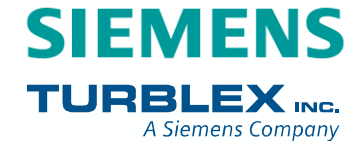


# Answers for clean air, clean water and clean energy

Mexican-Danish-Water Day – March 4<sup>th</sup> 2010  
Siemens Turbomachinery Equipment A/S  
Turblex Inc. – A Siemens company

# Mexican-Danish-Water-Days 2010

Siemens a strong partner in sustainable urban infrastructure development



SIEMENS

Biological Treatment

Odor Control

Clarification process

Membranes

Chemical Feed & Disinfection

Water Reuse & Desalination

Bio-solids Management

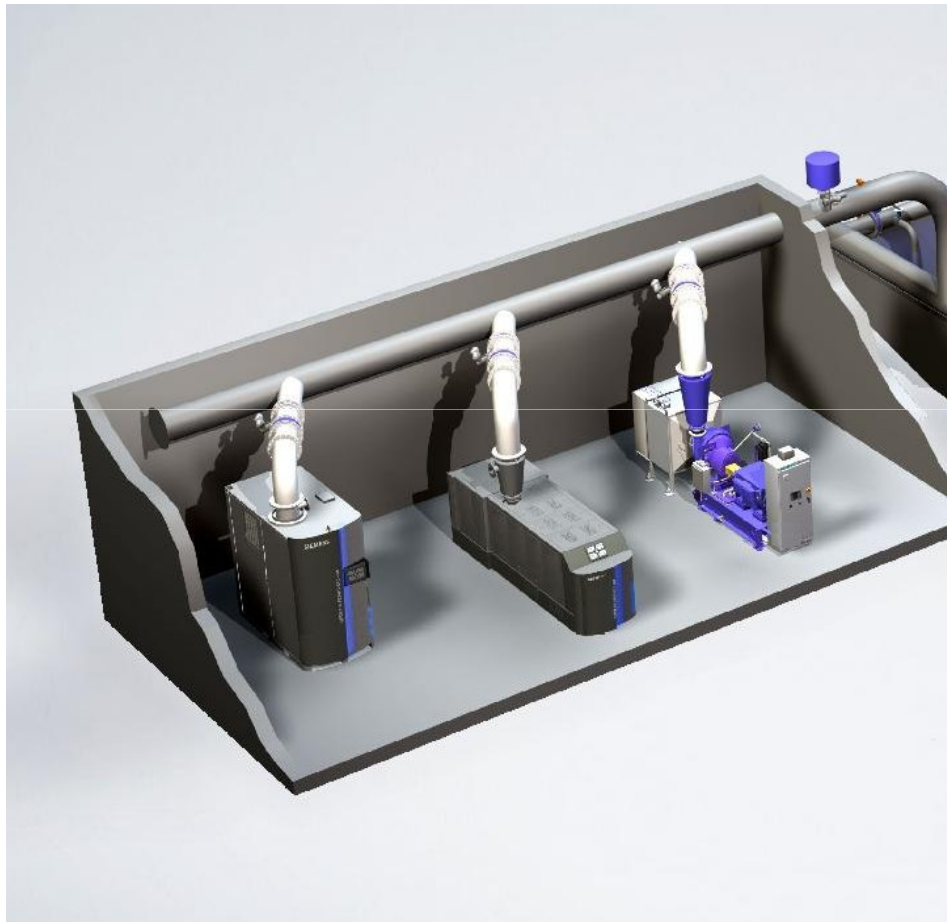
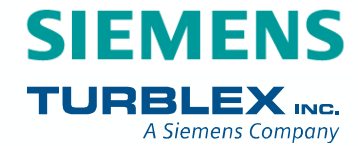
Conventional Drinking Water



In biological treatment the central process is the aeration of the waste water treatment

# Mexican-Danish-Water-Days 2010

The aeration process: What is it & why is efficiency so important?



### Answers for Energy in Water

Siemens is currently the only company in the world to offer direct-drive and geared single-stage turbo blowers featuring Dual-Point Control™ along with proven automated air delivery systems for multiple wastewater aeration processes.

Our experienced, energy-focused, and effective offering has allowed Siemens to become a premier supplier and responsible partner in the development of wastewater aeration systems.

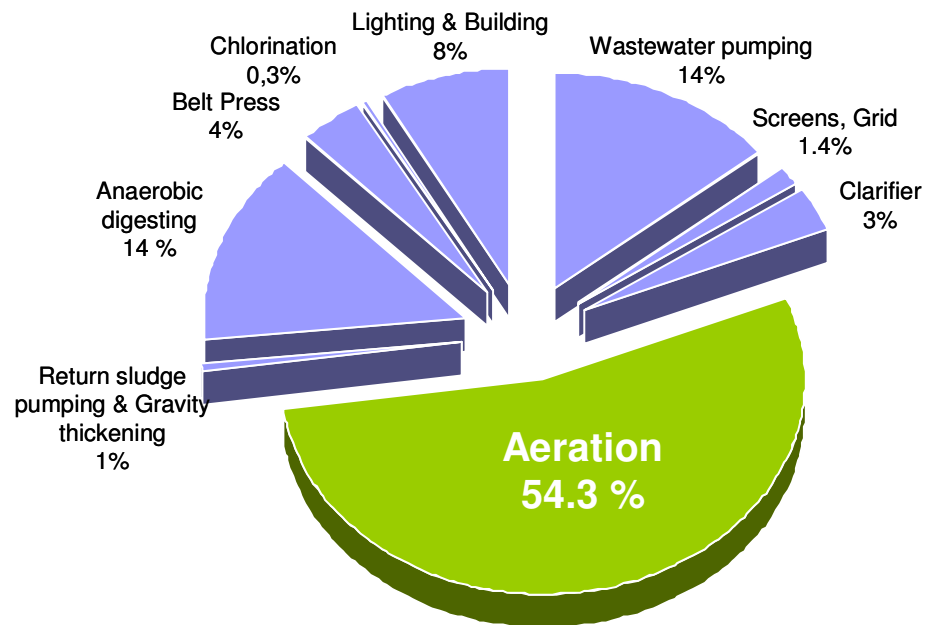




# Mexican-Danish-Water-Days 2010

The importance of aeration as a central process in the plant

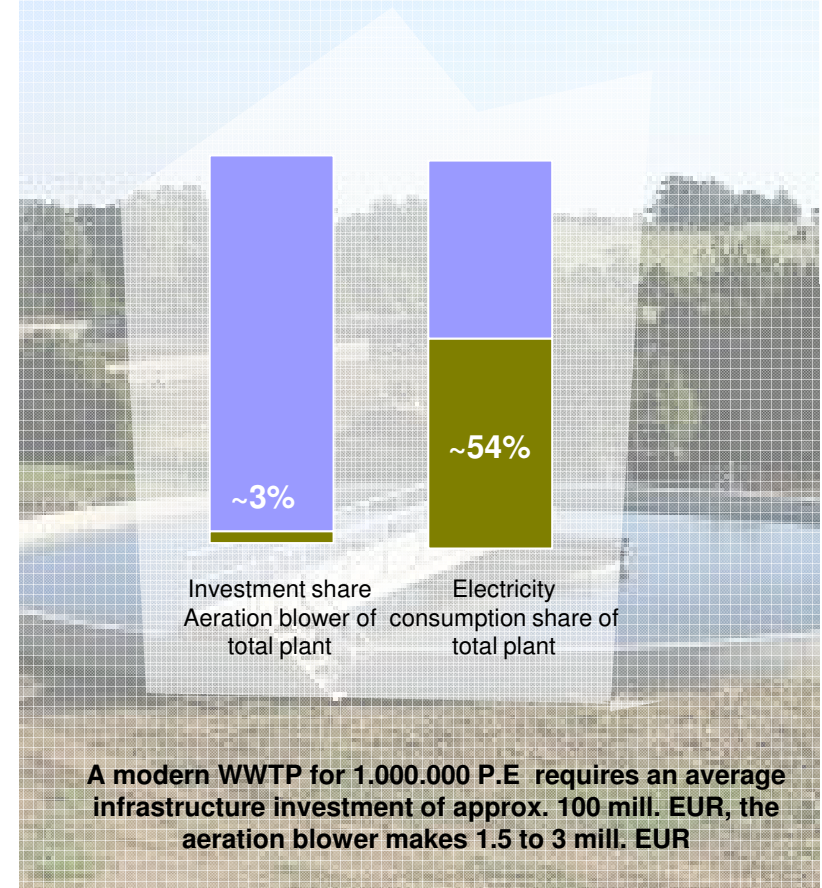
## What is the biggest spender in operational costs?



Electricity consumption for waste water treatment plant (activated sludge)

Source: Water Environment Federation Energy Conservation Task Force.  
Energy Conservation in Wastewater Treatment Facilities. 1997

## Investment costs vs. operating costs



A modern WWTP for 1.000.000 P.E requires an average infrastructure investment of approx. 100 mill. EUR, the aeration blower makes 1.5 to 3 mill. EUR

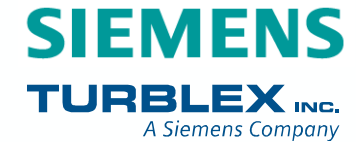


“Energy efficiency is not just low-hanging fruits – it is fruits that is lying on the ground” *US Secretary of Energy, Steven Chu*

**So how can we pick up this fruit in municipal sewage treatment?**

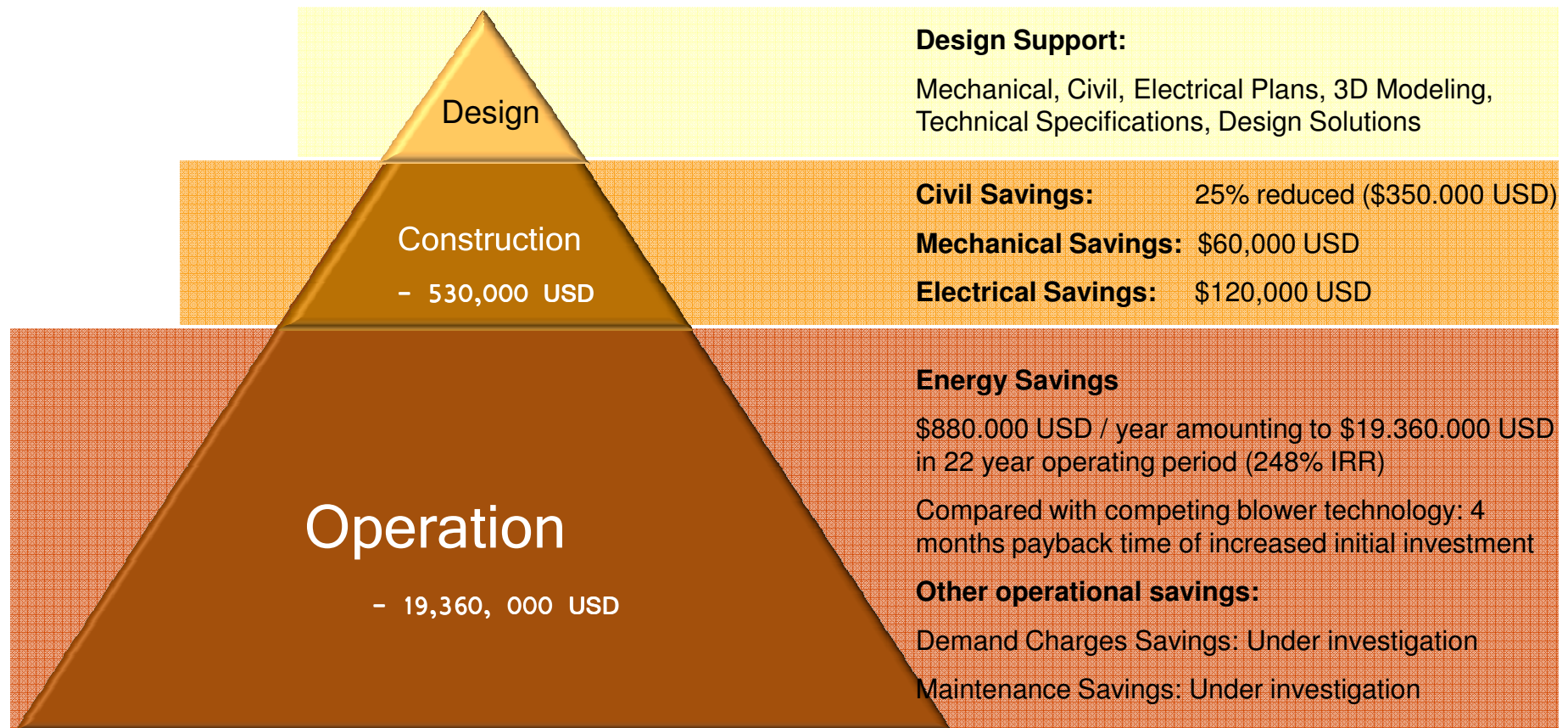
# Mexican-Danish-Water-Days 2010

A current, nearby challenge: Atotonilco project, Mexico City



## Aeration cost pyramid

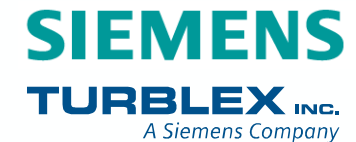
## Siemens blowers offer:





# Mexican-Danish-Water-Days 2010

Other mega-cities and their trust in Siemens aeration blowers



Selected cities	Metropolitan population (mill)	Potential savings p.a. (mill EUR) (CO <sub>2</sub> emission)	Installed Siemens blowers
London	13.9	11.0 (64 kilotons)	---
Paris	11.8	9.3 (54 kilotons)	34 units
Madrid	7.1	5.6 (32 kilotons)	20 units
Berlin	5.0	3.9 (23 kilotons)	24 units
Rome	3.7	2.9 (17 kilotons)	15 units
Warsaw	3.4	2.6 (15 kilotons)	11 units
Amsterdam	2.2	1.7 (10 kilotons)	14 units
Stockholm	2.0	1.6 (9 kilotons)	20 units
Oslo	1.4	1.1 (6 kilotons)	18 units
<b>Mexico City</b>	<b>21.2</b>	<b>17 (97 kilo tons)</b>	<b>4 units</b>
<b>Singapore</b>	<b>10.0</b>	<b>8.9 (50 kilotons)</b>	<b>34 units</b>
<b>Shanghai</b>	<b>18.9</b>	<b>15 (87 kilotons)</b>	<b>36 units</b>
<b>New Delhi</b>	<b>18.4</b>	<b>15 (84 kilotons)</b>	<b>---</b>
<b>New York</b>	<b>18.2</b>	<b>14 (84 kilotons)</b>	<b>49 units</b>
<b>Cairo</b>	<b>17.9</b>	<b>14 (82 kilotons)</b>	<b>19 units</b>
<b>Tehran</b>	<b>13.4</b>	<b>11 (61 kilotons)</b>	<b>5 units</b>

## Our support in health/ environmental

Waste water of over 600 million population equivalent (P.E.) is treated with Siemens equipment

Over 300 million people are benefiting from environmental friendly waste water aeration with Siemens equipment

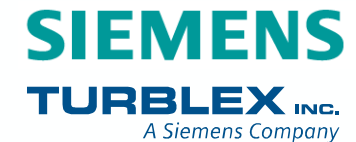
Every year we supply or upgrade an additional 45 million population equivalent of waste water plants

\* Based on the assumption that our equipment would be substituted with 50% multistage and 50% PD-blower

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# Mexican-Danish-Water-Days 2010

Other mega-cities and their trust in Siemens aeration blowers



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## Our Ecological balance sheet \*

We reduced the energy demand of the industry by **675 MW** (equivalent to one 1-bEUR power plant)

Over **EUR 430 million EUR** in energy cost saved in waste water treatment per year

Emission savings of over **2.9 megatons of CO<sub>2</sub>** per year achieved (equivalent number of cars on the road: 750.000)

\* Based on the assumption that our equipment would be substituted with 50% multistage and 50% PD-blower

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## **Making the right choice**

For clean air, clean water and clean energy

**SIEMENS**

**Thank you very much for your attention**

**Please visit at our booth outside the conference room**

**And join our seminar in the afternoon 15:30- 16:25 o'clock to learn more what Siemens can do for you**

For more information's or a cost free energy audit of your aeration system, please contact:

**Florian Adam**  
**Siemens Turbomachinery Equipment A/S**  
**Allegade 2**  
**3000 Helsingoer, Denmark**  
**Phone +45 49 21 14 00**  
**Fax +45 49 21 52 25**  
**Direct +45 49 25 63 12**  
**Mobil +45 30 52 32 23**  
**mailto: [florian.adam@siemens.com](mailto:florian.adam@siemens.com)**

## Siemens Study tour

“Pay as you benefit” solution

**SIEMENS**

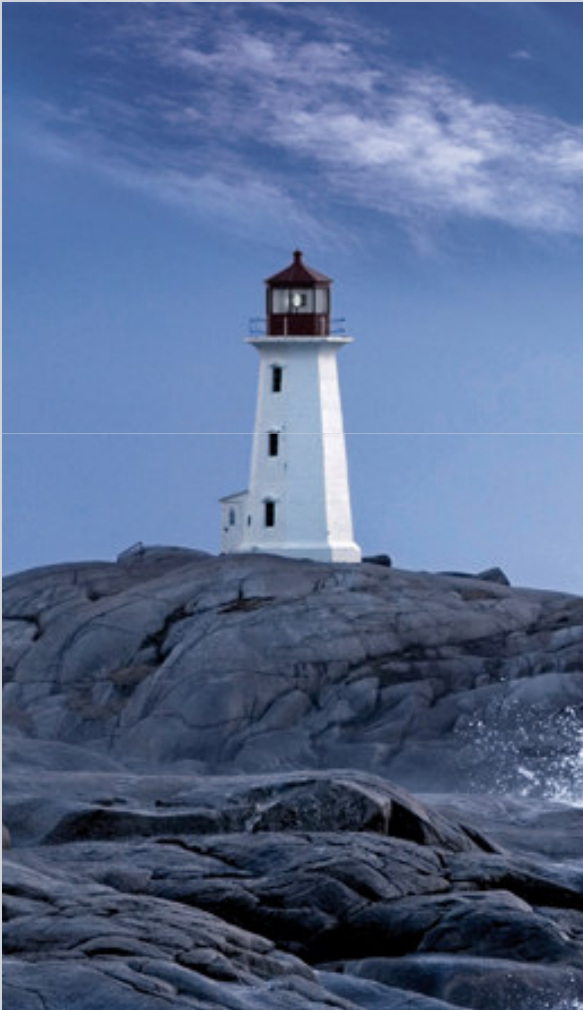


- **“Pay as you benefit” shows our confidence in the achievable energy savings for your plant**
- **With our partner Siemens Financial Services (SFS) we take over the initial investments in our products, allowing you to:**
  - save liquidity in turbulent times
  - free investments for other purposes
  - put energy savings back into your facility
  - increase effluent quality & stability
  - save the environment w.o. putting pressure on your credit line
- **Payback via the agreed energy savings over the payback time**



# Siemens Study tour

## Siemens “Pay as you benefit” solution



The “Pay as you benefit” concept

