

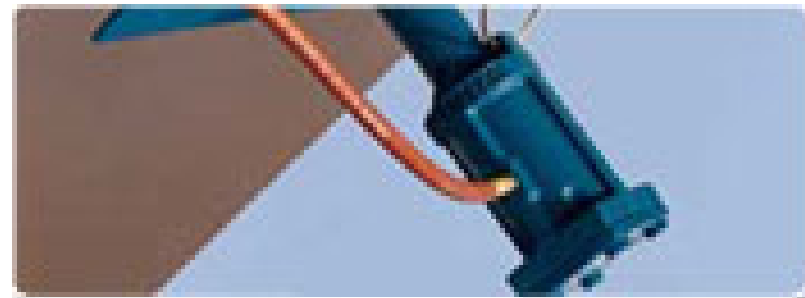
# *Impact Cylinder:*

*\*\*\* and all its various names \*\*\**

## *Sales Opportunities Mini Research*

- What is its valued selling point?*
- To which accounts do we sell it to?*
- Who is doing similar in US or EU?*

Compiled by: P. Ogonga  
Dated: Jun 2008



# Contents:

- **The Technology or Product**
- **Understand key industries where application can be used**
- **Understand market size and competitors**
- **Understand potential key customers in USA and Europe**
- **NEXT STEPS**



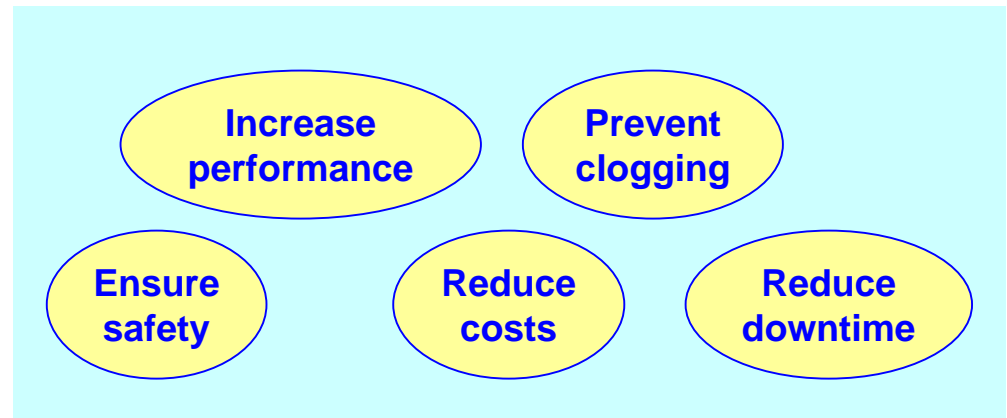
# Different names ...

- *Rapper*
- *Rapping Device*
- *Hammer*
- *Whacker Cylinder*
- *Percussion Cylinder*
- *Impact Vibrator*
- *Pneumatic Vibrator*
- *Impact Actuator*
- *Pneumatic Electrostatic Precipitator device*

Agitate,  
Palletize,  
Tumble,  
Screen,  
Agitate,  
Blend,  
Convey,  
Elevate,  
Divide,  
Wash,  
Meter,  
Heat,  
Shake,  
Separate,  
Scalp,  
etc

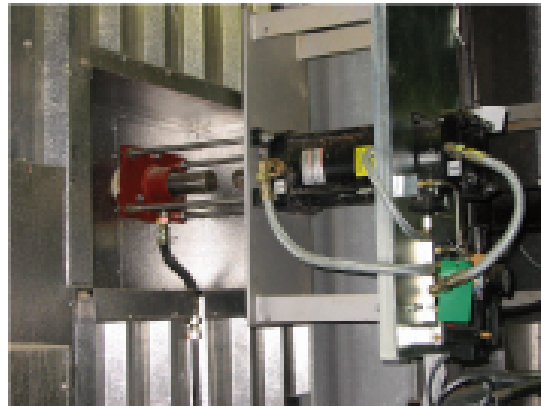
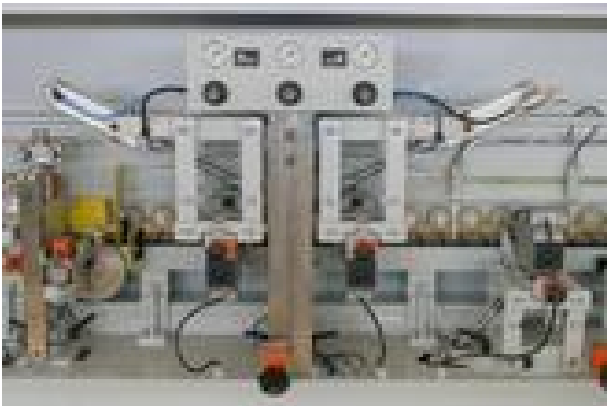
## ... for different purposes and industries ...

1. *Prevent or remove waste particles from clogging or sticking to surfaces*
  2. *Ensure safety of people and equipment from falling particles*
  3. *Direct materials towards a set line within an assembly*
  4. *Alert mechanism to perform manual or scheduled operation*
- **Power Generation with boilers Industry** (*\*\*\*current Norgren sales*)
  - **Wood manufacturing**
  - **Paper and Pulp**
  - **Packaging**
  - **Mining**



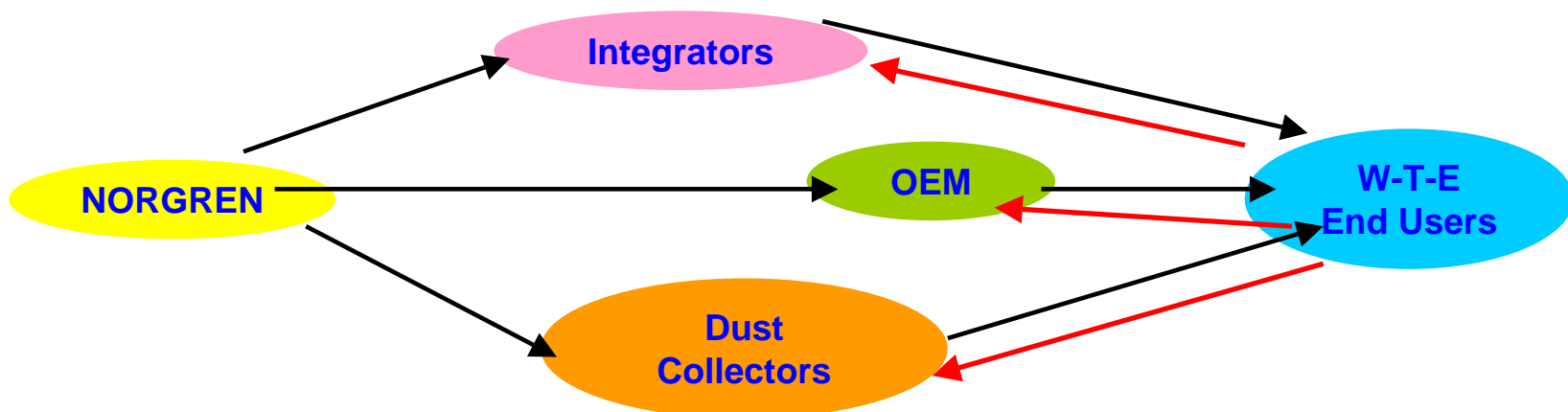
## The Norgren Product:

- **EFFECT** by using a piston to apply "a hammer or whacker or percussion effect" using compressed air
- **IMPACT** on heating components that **PREVENTS** dust particles from settling and fall off thereby impacting performance
- **RE-DESIGNED** to be smaller, lower cost and with adjustable regulator and higher impact efficiency
- **SOLD** to Waste-to-Energy End-Users in Switzerland and Germany



# ... why is Waste-to-Energy getting popular?

1. **Costs:** Higher fuel cost forces a reconsideration of energy alternative
2. **Retailers:** MacDonal'd's Franchises (11) in UK turn to WTE alternatives
3. **End-users:** Mars USA partners with EPA to transform landfill to WTE
4. **Technology:** Green Energy Center in Paris to service 1-M residents
5. **Regulations:** Europe in midst of enforcing stricter Waste Regulations
6. **Dumping:** UK- DEFRA, EU's EPA crackdown on Waste Mismanagement
7. **Commercialization:** USA- EPA, Renewable Energy Dept perform pilots



# ... Global market for waste-to-energy plants ...

1. **Global** – *rebounding with more investment and awareness*
  - a) *Projected revenues spent to rise by 37% in next 5 years*
  - b) *Projects benefit from varied tax incentives or rebate programs*
2. **USA** – *Tax Incentives; Clean Air Act; Concern on feedstock supply*
  - a) *Presence of available and cheap space for landfills (except in places like Florida and other low-lying areas); less than 200 plants exist today*
  - b) *Pollution control of chemicals toxics and emissions esp. medical waste*
3. **Europe** – *13m tons today and expected 15m tons by 2012*
  - a) *Lack of landfill, environmental regulations; drive towards sustainability*
  - b) *Over 500 such plants in Europe exist; 200 more plants planned by 2012*

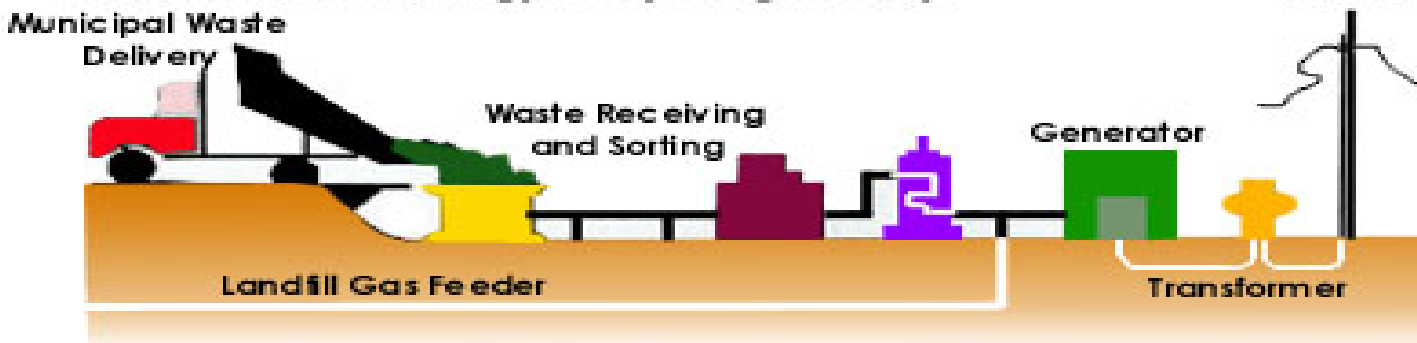
# ... WASTE POWER GENERATION ...

- Processing of various waste categories to produce energy
- Involves incineration of waste which generates heated steam
- Steam is either sold OR used to turn a turbine and produce electricity that's sold
- Widely considered as a clean, reliable and renewable form of producing energy

## Power Generation From Landfill Gas



## Solid Waste to Energy Recycling Facility





# ... what is our waste-to-energy sales pitch ...

## Any industrial plant operation that uses BIG BOILERS desires to have:

- *Effective and efficient removal of ash or particles that clog*
- *Increased performance of boiler operations and lower costs*

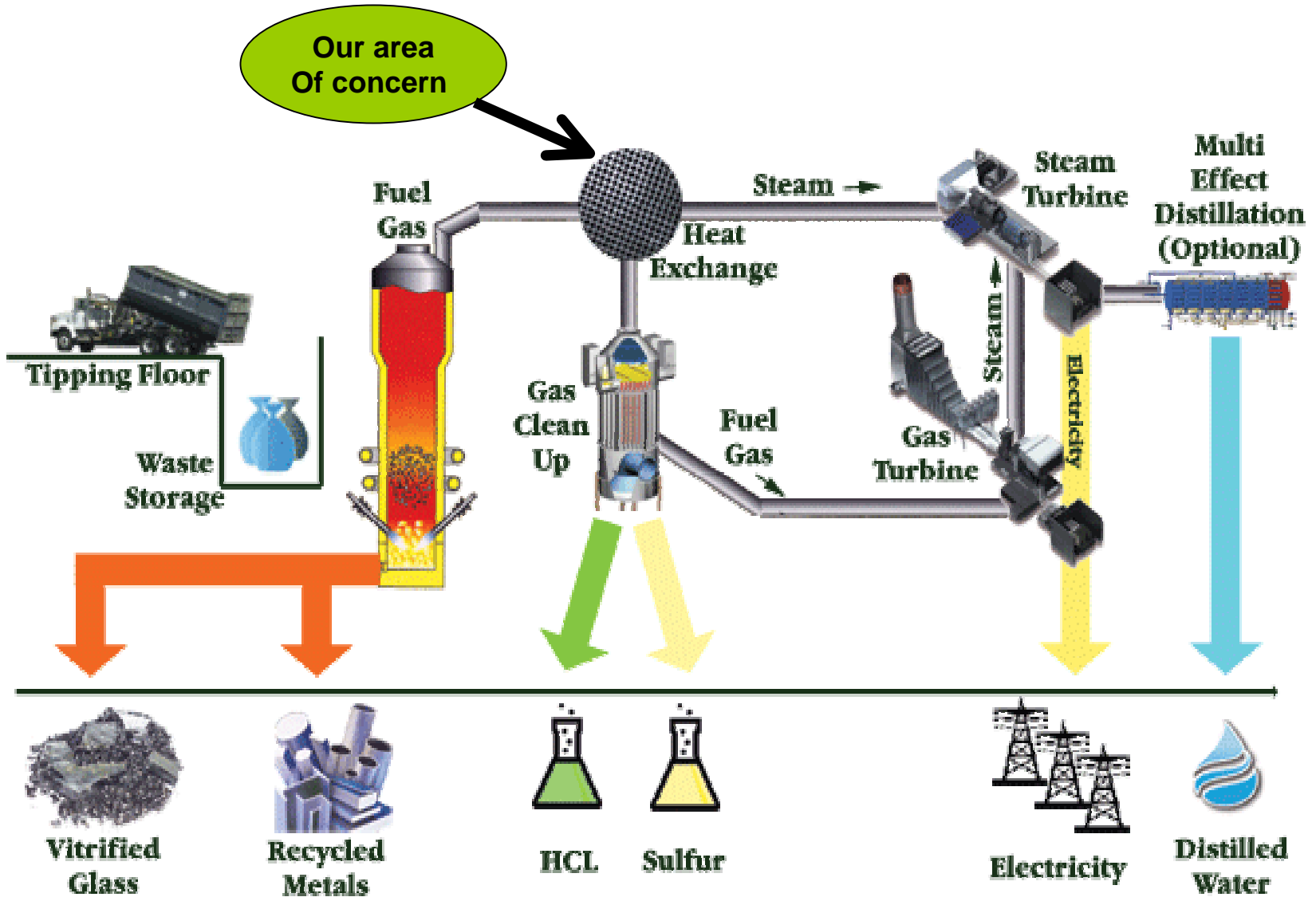
## System-wide solution used depends on size and processes in boiler plants:

- *Small Boilers may engage in manual or simple mechanical processes*
- *Big Boilers undertake complex processes and systems*
  - ❖ ***Using Electro-Mechanical Hammers- US\$ 100,000 per system***
  - ❖ ***Using Pneumatic Impact Cylinders- US\$ 150,000 per system***
  - ❖ ***Using Soot Blowers- US\$ 5-12,000 per blower system***

## What is incinerated:

- Paper, Timber, Refusing textures, Leather, Rice grass, Non-eatable foods, Synthetic resin, Rubber, Tires, Oil soaked cotton, cloth waste, Any other waste having some, combustible value.

# ... waste-to-energy processes ...



# ... W-T-E fits our Key Accounts criteria ...

1. **Key Global Accounts have 65%+ of industry sales**
  - *Foster Wheeler, Alstom, Hitachi, Babcock & Wilcox, Riley Power*
2. **System solutions preferred**
  - *Energy costs and performance require comprehensive solutions*
3. **Sales Orientation**
  - *Project work/contracts approach between 2-12 months*
4. **New Business versus MRO**
  - *Strong sales in new technical conversions and replacement service*
5. **Platform Product and Service Offering**
  - *Air Audit, Valve, Actuator, Accessories bundled with boiler solutions*
6. **Presence of Distributors is limited (at least in Americas)**
  - *Sales evenly spread between Direct to End Users and to OEM's*
7. **Global Leverage**
  - *Growth in EU, Asia and Africa. Rebound in Americas*

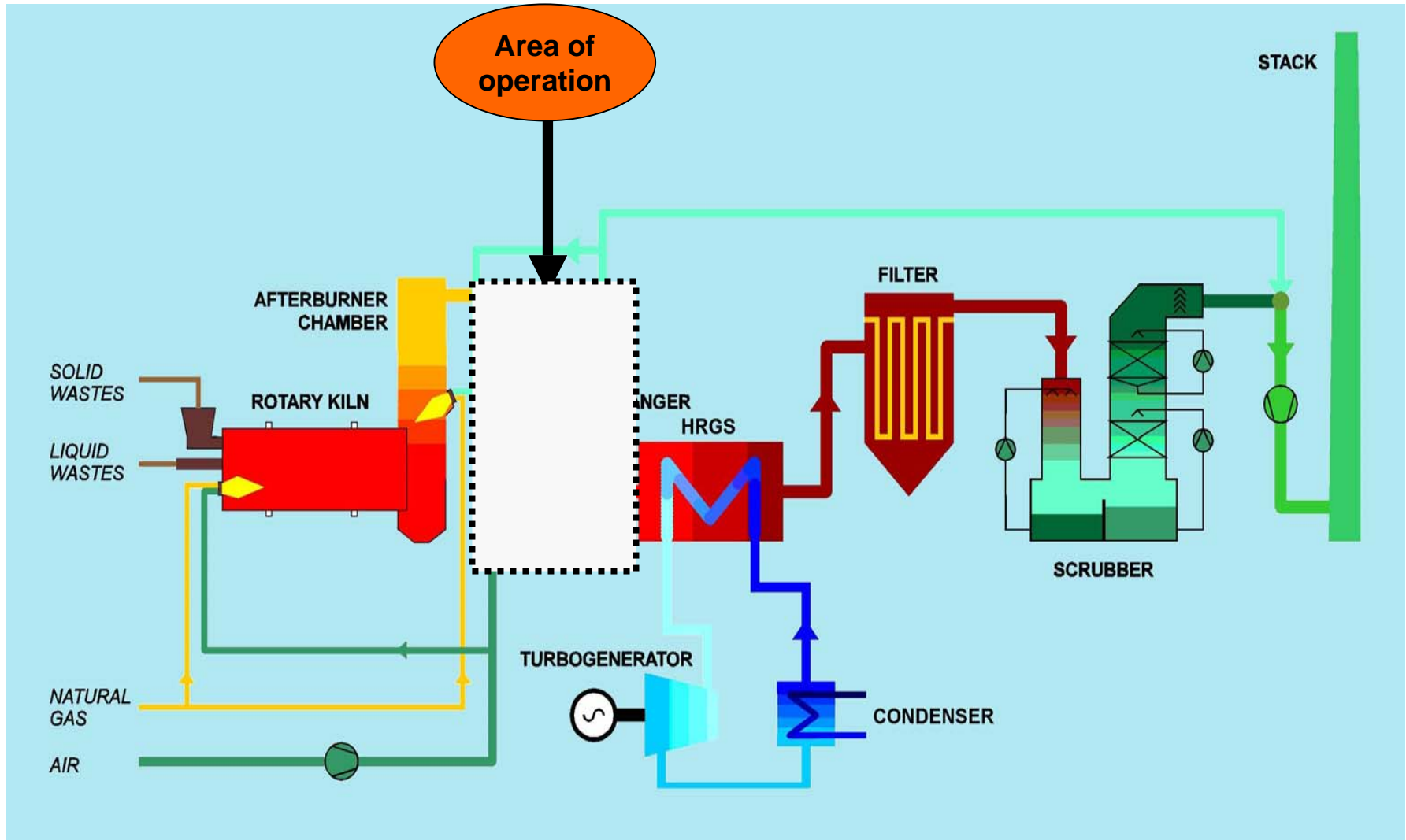
# ... how waste-to-energy boilers remove ash ...

## Determinants:

- *Hammers per Boiler: 15-50*
- *Boilers per Plant: 5-10*
- *Hammers per plant: 75-500*

1. **Mechanical Hammer**- *Electric Motor with gear box and shaft with suspended hammers which when rotated impact heating surfaces. \*\*Old Technology\*\**
2. **Pneumatic Impact Cylinders**- *Compressed Air passes through a cylinder which then rams a stationary cylinder part that impacts the tubes/pipes.*
3. **Soot Blowers**- *Devices inside a boiler use Compressed Air (expensive) or Steam (cheaper) to remove ash or soot on heat transfer surfaces*
4. **Bag-House Filter**- *Filter elements contained sift through the soft debris*

... where Norgren offers a key value proposition ...



# ... other sectors application opportunities ...

## 1. Power Generation:

- a) **Steam Turbine** – *removal of ash in main boilers*
- b) **Waste Energy** – *removal of ash and dust particles from boiler parts.*

## 2. Industrial Mills:

- a) **Paper Mills** - *Recovery boilers. Heat transfer is affected by black liquor*
- b) **Packaging** – *Where boilers are used, prevention of stickiness surfaces by dust*

## 3. Process Cleaning:

- a) **Water Treatment** – *removal of particles from heat exchangers surfaces*
- b) **Food Processing** – *removal of clogged parts in food mixing processes*
- c) **Chemical** – *removal or prevention of clogging of particles during mixing*
- d) **Mining** – *Ore processing and prevention of particles clogging or sticking*

## 4. Material Handling:

- a. **Conveyance** - *Directional impact and control of materials movement*
- b. **Sorting** – *Prevention of blocked materials convergence*

## ... select market(s) players ...

Other Players	Power Gen	W-T-E or B-T-E	Paper & Pulp	Mining & Rock	Material Handling	Iron & Steel	Pharma	Food Process	Wood	Waste Water	Chemical	Utility
Norgren		X										
SMC												
FESTO												
BIMBA												
Clyde Bergemann	X	X	X	X		X					X	
Copes Vulcan		X	X								X	X
NAVCO	X		X	X								
PECO	X											
Hamon Researc Cottrell	X	X	X	X								
GE (General Electric)										X		
Cleveland Vibrator				X	X	X	X	X			X	
METSO Minerals				X	X		X				X	
Chicago Vibrator												
Houston Vibrator												
VIBRATEK												
Oli Vibrator												
COUGAR Industries												
AIRMATIC			X	X	X							
Carrier Vibrating Equip		X	X	X	X	X	X	X	X		X	
FMC Tehncologies					X							
AVC Specialists					X							

## ... select potential customers ...

REGIONS	Power Gen	W-T-E or B-T-E	Paper & Pulp	Wood	Waste Water	Utility
USA	Georgia Pacific, Smurfit Stone Corp, Weyerhaeuser, Savannah Electric, South Mississippi Electric Power, Dominion Power, MIRANT, Minnesota Power, Pacificorp, WMX Technologies	Babcock Borsig Power, ALSTOM, COEN, BREMCO, BIOMAXX, ACME Boiler, ATTSU Termica, etc	International Paper, Biesse Americas, BOSTIK Corporation	KOCH Machinery, Georgia Pacific, BIESSE America, CARGILL	GE Water, Bono Aires PACT, Canon	Tri-State Utilities,
UK	BANHAM Power UK, Pristine Power,		Sandicare Machinery	GF Industries	VEOLIA, Graham Tek	
EU	BREDL, SIEMENS, GE, ABB	MKVA Krefeld	Rose Forgrove	CEMCO, KRAEMER, TERRA	BERKEFELD, EVONKIC,	
ASIA PACIFIC	SHENZHEN MICA		NY PRO			

## ... in-direct channels partners ...

- *AIRMATIC inc*
- *Dixon Automatic Tool*
- *HINDON Corp*
- *SOLIMAR Pneumatics*
- *Air Process Systems & Conveyors*





# ... select market(s) players ...

Other Players	Power Gen	W-T-E or B-T-E	Paper & Pulp	Mining & Rock	Material Handling	Iron & Steel	Pharma	Food Process	Wood	Waste Water	Chemical	Utility
Norgren		X										
SMC												
FESTO												
BIMBA												
Clyde Bergemann	X	X	X	X		X					X	
Copes Vulcan		X	X								X	X
NAVCO	X		X	X								
PECO	X											
Hamon Researc Cottrell	X	X	X	X								
GE (General Electric)										X		
Cleveland Vibrator				X	X	X	X	X			X	
METSO Minerals				X	X		X				X	
Chicago Vibrator												
Houston Vibrator												
VIBRATEK												
Oli Vibrator												
COUGAR Industries												
AIRMATIC			X	X	X							
Carrier Vibrating Equip		X	X	X	X	X	X	X	X		X	
FMC Tehncologies					X							
AVC Specialists					X							

# ... estimated market size and potential ...

INDUSTRIES	Global Net Sales	Equipment Spend	Pneumatic Spend (1%)	Product Potential spend (35%)
POWER GENERATION				
WASTE to ENERGY	30-B	4-B	40m	15m
PAPER & PULP	50-B	5-B	50m	20m
MINING & ROCK				
MATERIAL HANDLING				
PHARMACEUTICAL				
FOOD PROCESSING				
WOOD WORKING	55-B	5.5Billion	55m	20m
WASTE WATER	10-B	1-B	10m	5m
CHEMICAL				
UTILITY				

## ... what next after initial market study ...

Activity	Objective	Dates
Mini Report presentation	Inform and educate	July 1st week
External 1-day consultations review	Gather and validate what is known	July 1st week
Review Meeting and Plan Launch	Refine Product Brief and Propositions	July 1st week
Select 5-19 pilot OEM and End-User Visits	Validate customer proposition	July-Aug
Prepare Marketing & Communications	Marketing Support Collateral	Aug
Sales People Presentation & Training	Training on selling propositions	Aug-Sep
Launch Kick-off, monitor monthly	Test the market	Sep-Dec

## ... W-T-E networking, additional resources ...

### 1. Int'l Exhibition/Conference for Energy from Biomass and Waste

- <http://www.wte-expo.com/> (10-11 Dec 2008, Hanover)
- FESTO attending and exhibiting at Int'l WTE Exhibition, Hanover

### 2. CleanTech Forum XVIII

- <http://www.cleantech.com/> (17-19 Sep 2008, Washington DC)