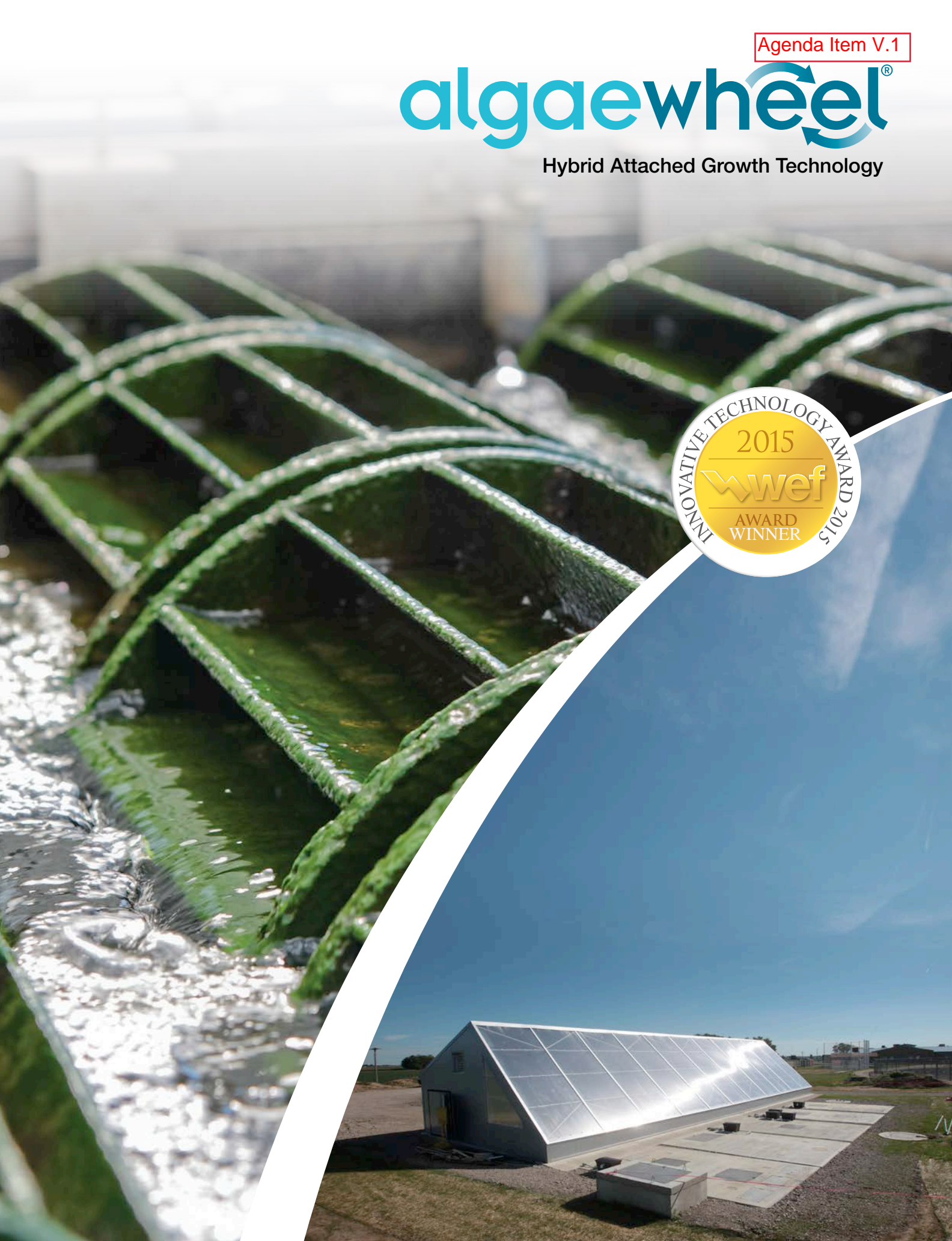


# algae wheel<sup>®</sup>

Hybrid Attached Growth Technology



Algaewheel is an award winning technology that sustainably solves the problems of distributed treatment



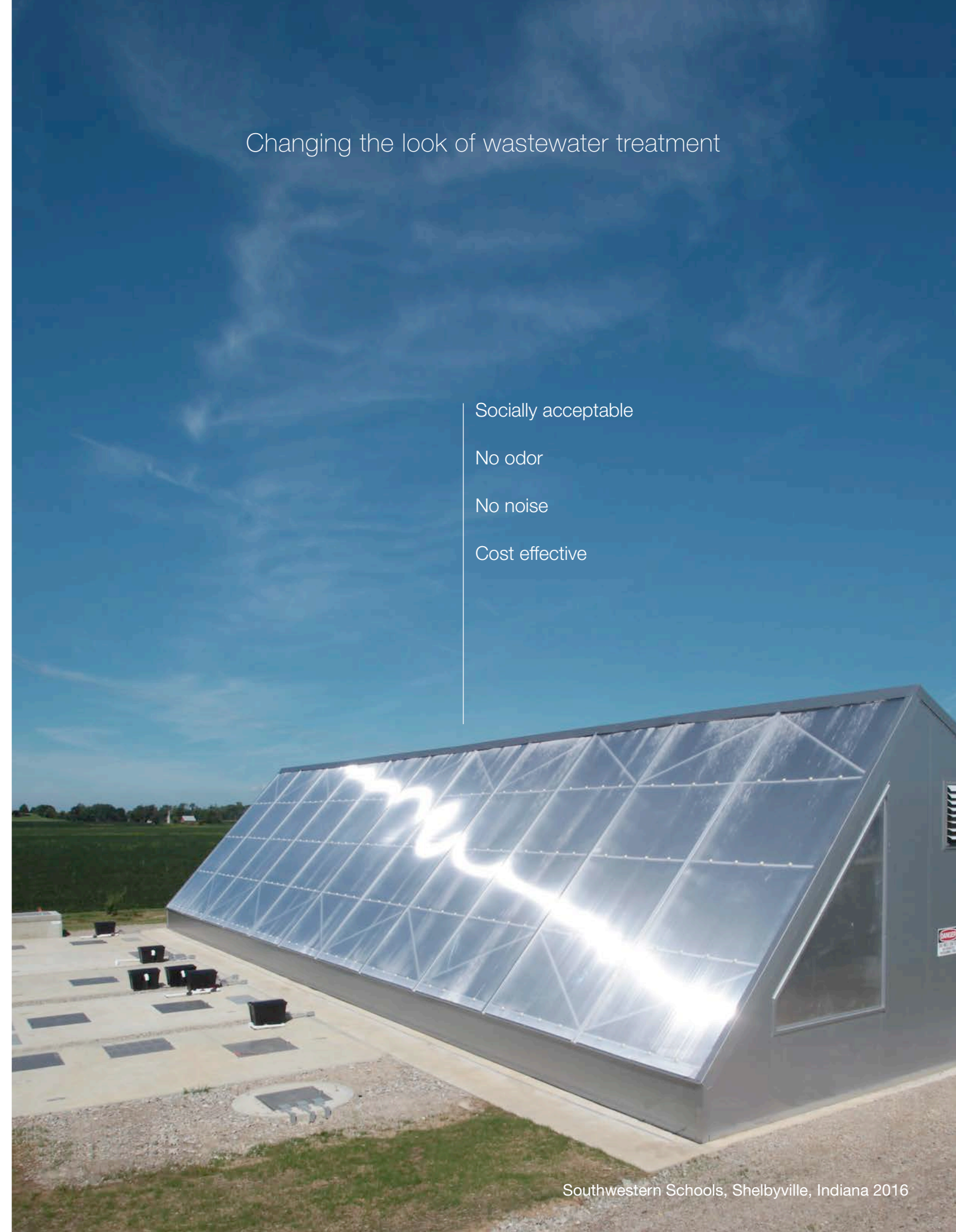
Changing the look of wastewater treatment

Socially acceptable

No odor

No noise

Cost effective

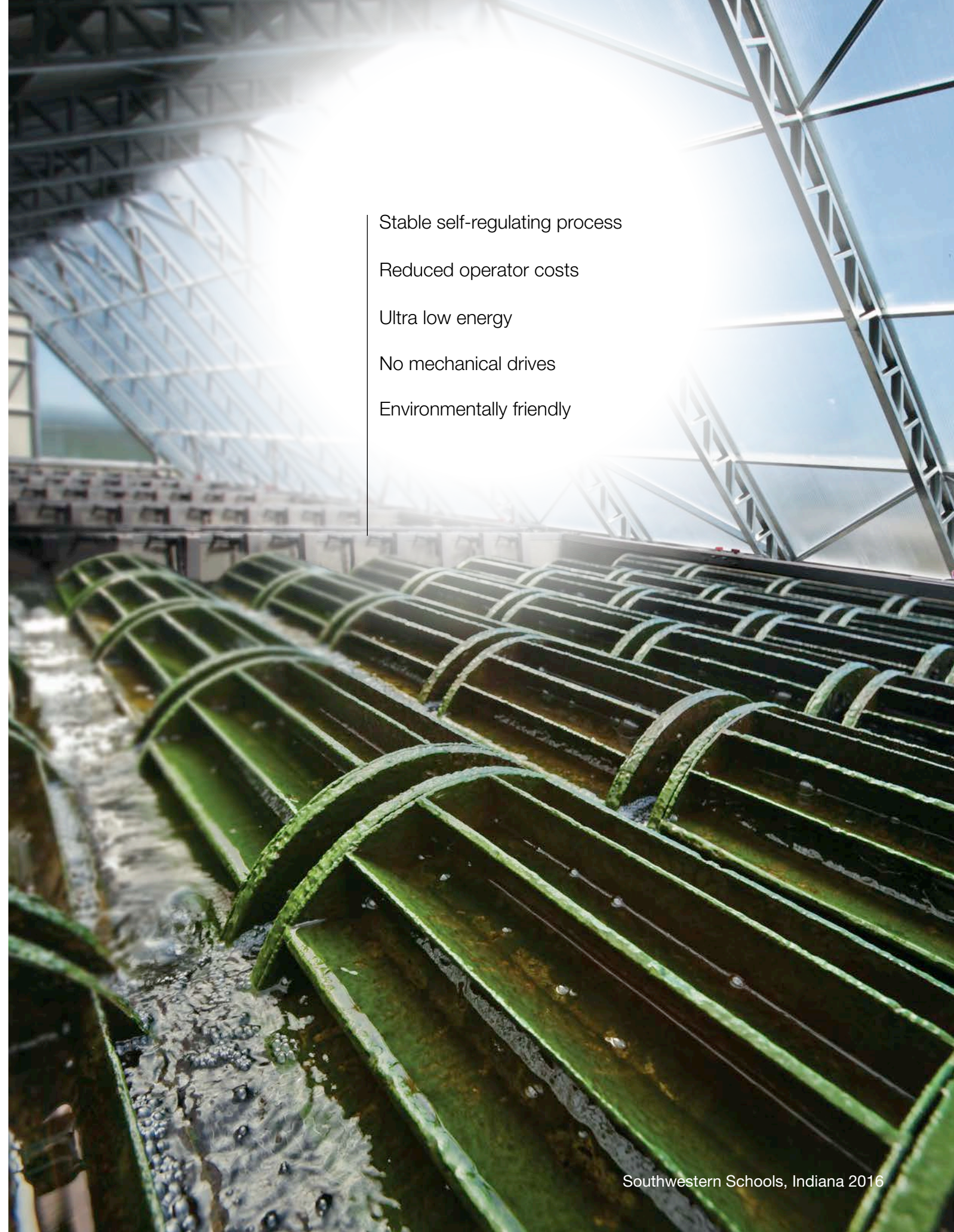


Southwestern Schools, Shelbyville, Indiana 2016

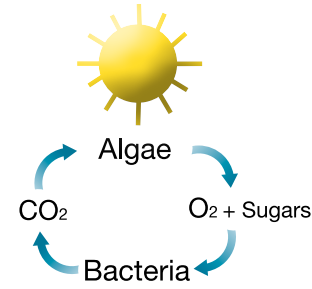
Algaewheel is a hybrid technology that integrates algae into a proven process to enhance treatment efficiency



- Stable self-regulating process
- Reduced operator costs
- Ultra low energy
- No mechanical drives
- Environmentally friendly



## Photosynthetic Algal Biofilm

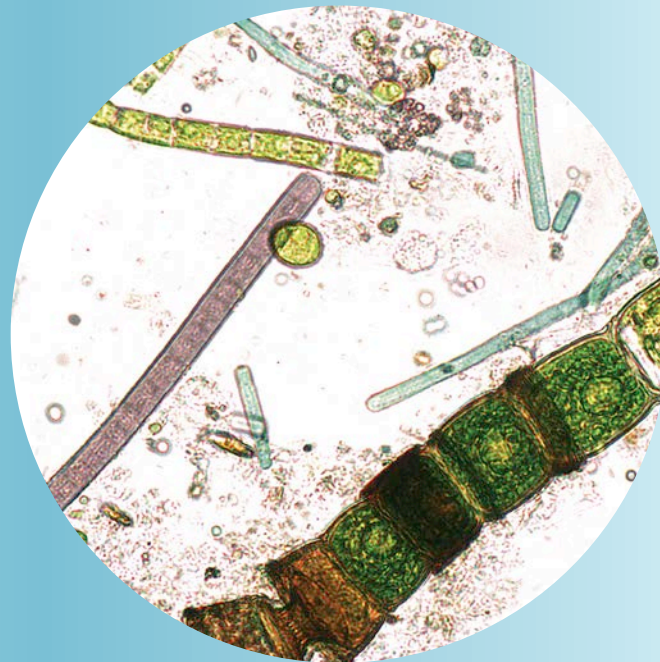


The photosynthetic algal biofilm which forms on the Algaewheels cultivates and sustains a large and diverse algal and bacterial ecosystem that provides enhanced treatment performance.

Over millions of years, algae and bacteria have developed an intricate relationship where the by-products of one group are the inputs for the other. Algae grow on rotating wheels, using light, CO<sub>2</sub> and nutrients. Algae produce oxygen, consume carbon-dioxide, and generate polysaccharides (sugars). Bacteria consume the oxygen and sugars and produce carbon dioxide - completing the cycle.

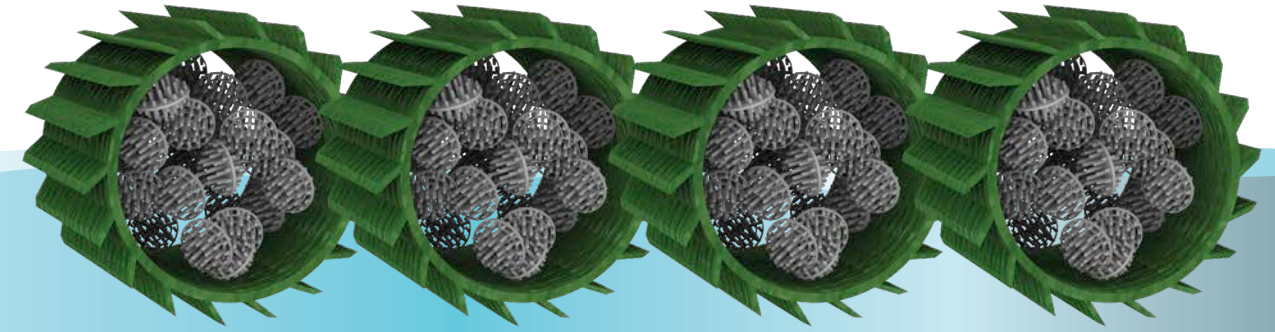
When subjected to light, the algal biofilms become saturated with oxygen. When combined with wheel rotation, high dissolved oxygen (DO) levels enhance BOD reduction and nitrification.

A small air blower generates bubbles that lift and slowly rotate the buoyant Algaewheels.



Biofilm containing algae and bacteria at 400x magnification

## Stable, self regulating process



## Symbiotic Biofilm

### Algae

Grow on wheels using light, CO<sub>2</sub> and nutrients

Host large and diverse bacterial populations

Produce oxygen and polysaccharides (food) for bacterial growth

Polysaccharides also improve solids settlement

### Bacteria

Grow around the algae and inside the wheels on biomedica

Produce CO<sub>2</sub> - used by the algae

Feed on polysaccharides in low flows

**The synergy between algae & bacteria maintains effective treatment during variable flows and loads**

Algaewheel will optimize your overall treatment performance



- Built in parallel
- Uses existing infrastructure
- Easily expanded
- Built in weeks not months

Summit Lake State Park (DNR) - Retrofit 2014

Modular construction  
...simply a smarter way

algaewheel®

Complete preassembled modules

Factory assembled quality

No scale-up risk

Rapid site installation



**Algaewheel Tank Modules**  
Precast concrete tanks delivered preassembled  
with Algaewheels and associated components,  
ready for placement and connection.

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