IBA Vision

Become a global market leader providing totally integrated biogas solutions for any organic waste stream

- De-risk projects for financing and implementation
- Optimize project design and minimize costs
- Decrease cycle time to revenue
- Improve operating performance and ROI
- Deploy world-class reference plants around the world
IBA Value Proposition

- Industry leading companies w/over 260 years of combined experience
- Proven technologies w/strong history of competing in global markets
- Fully integrated platform solution for any Ag or biowaste feedstock
- Operational offices on 4 continents in 41 locations
- Global supply chain to deploy anywhere in the world
- Key industry partnerships provide turnkey execution and financing
- Lowers risk for owner/investors and EPCs
- Single design and installation package
- Optimizes the economic, agronomic and environmental value of the organic waste
- Integrated performance guarantees
- Integrated service offering
IBA Global Deployment

*Biogas projects and/or related systems

3712 Projects | 6 Continents | 55 Countries
Members/Board

Christopher Maloney
Global Head, Organics Diversion

Brad Douville
President & CEO

Pier Cella
CEO

Thomas Runde
CEO

Enzo Bellavigna (Partner)
CEO

Partners

Thomas Bachman
CEO

John Haeckel
CEO

Will Charlton
CEO

Jordan Solomon
CEO

Amir Akbari
President & CEO
Integrated Biogas Alliance

Turnkey Scope of Supply

- Project Development
- Capital Proforma
- Development Performance Guarantees
- Operations Training
- Budgetary Costing for Investors
- Engineering & Design
- Service
- Installation Supervision
- Equipment Procurement & Logistics
- Plant Optimization Software
- Plant Operations
- Systems Integration
- Commissioning
- 3D Plant Rendering
- Performance Guarantees
- Construction
- Proforma Development
- Spare Parts
- Start-up
- Feedstock BMP Testing
- Project Financing (Equity & Debt)
- Feedstock Sourcing & Risk Mgmt.
- Project Development Capital
- Engineering & Design
- Service
- Equipment Procurement & Logistics
- Plant Optimization Software
- Plant Operations
- Systems Integration
- Commissioning
- 3D Plant Rendering
- Performance Guarantees
- Construction
- Proforma Development
- Spare Parts
- Start-up
- Feedstock BMP Testing
- Project Financing (Equity & Debt)
- Feedstock Sourcing & Risk Mgmt.
- Project Development Capital
Anaerobic Digestion (AD)

- Headquarters in Chicago, USA
- A global leader in AD technology and systems
- 20+ years of experience
- 100 installations around the world
- Low total cost of ownership
- Dry and wet AD systems
- Ability to process virtually any organic waste
- Modular and scalable – up to 2000 m³
- Concrete and steel designs
- Operational offices in Shanghai | Stuttgart | Chicago
- Flagship project at CR&R facility in Perris California

eisenmann.us.com
Biogas Upgrading & Conditioning

- Headquartered in Vancouver, Canada
- One of the world's leading biogas upgrading and conditioning companies
- 30+ years of experience
- 100+ installations in 18 countries
- Two of the largest biogas upgrading installations in the world (Germany and Canada)
- Only competitor to offer all 3 primary biogas upgrade technologies (Water-Wash, PSA & Membrane)
- World’s largest installation (Kuai/5,000 Nm3/hr.)
- Offices in key markets around the world

greenlanerenewables.com
Mechanical & Biological Treatment

- Headquartered in **Tortona, Italy**
- More than 40 plants built and in operation w/ total capacity of ~3 million tons
- Offtakes includes compost & refuse derived fuel
- Global Operations in:
  - Italy
  - UK
  - Greece
  - Croatia
  - Slovenia
  - Bulgaria
  - Kurdistan
  - Poland
  - Romania
  - Egypt
  - Morocco
  - India
  - Australia
- USA, Canada and China operations are managed through Chemtex International Ltd.
- Malaysia partnership with Bioessence Inc.
- Brazil operations through Versus Servicos ltda

entsorga.it
Biomass Treatment

- Headquartered in Hemdingen, Germany
- Grinding and separation experts for over 60 Years
- Biowaste separation, AD-Feedstock Treatment
- Applications include:
  - Wood, Straw and Fiber Treatment
  - Alcohol + Ethanol
  - Bio Waste Treatment and Separation
  - Silage Disintegration
  - Compound Feed
  - Pet Food
  - Aqua Feed
- 2,100 grinding systems in operation worldwide
- Turnkey process solution – or single machine
- High quality, maximum availability and reliability
- Global Partners in Europe, Turkey, Canada, South Korea, South and Latin America

tietjen-original.com
Combined Heat & Power (CHP)

- Headquartered in Orzinuovi (BS), Italy
- 21 Markets w/ >1,300 plants deployed
- 1,700 MW installed
- Solution provider w/ single contact for customer - from design to service
- Ecomax: world class industrial CHP system
- Turnkey execution: plug & play installation significantly reducing costs and implementation risks
- One of the industries largest service networks specialized in gas engines: >300 field technicians
- High performance: average 98% plant availability

gruppoab.com
Complete Design-Build Services

- Headquartered in **Milwaukee, USA**
- Organized for Design-Build with full in-house:
  - ✓ Engineering services - Professional Engineers spanning all disciplines
  - ✓ Cost Estimating and Procurement
  - ✓ Construction Management
  - ✓ Fabrication
  - ✓ Safety Coordination
- Experience in 49 states and 3 provinces
- 80+ Projects with over 35,000 scfm biogas upgraded
- Holistic and independent design approach
- Strong commitment to safety

[symbiontonline.com](http://symbiontonline.com)
Plant Operations & Maintenance

- Headquartered in Madison, USA
- Provide ownership support services for new and existing AD facilities
  - Preventive maintenance | purchasing/inventory management | safety | training | asset management
- Purchased, turned around and sold two facilities over past 4 years
- Currently manage 4 facilities for 3 owners:
  - ✓ 9 digesters
  - ✓ 3 of 4 run CHP, 1 converting to RNG
  - ✓ Operate separation at all
  - ✓ NCS system at one facility

cleanfuelpartners.com
Headquartered in Boise, Idaho
Only full-service R&D, lab testing, and consultation laboratory focused on AD in US
1,300+ BMPs performed on multiple feedstocks
✓ Highest production increase 5 to 50 MW (1000%)
✓ Average biomethane increases 30%-40%
20+ years experience: soil, water, and AD
Ability to R&D feedstock recipes to maximize ROI
Remote monitoring services to prevent crashes
Able to restore/accelerate methanogenic populations from failed or poorly performing systems

Project De-Risking & Operations Optimization
digesterdoc.com
Biomass Feedstock Supply & Supply Chain Risk Mitigation

- Headquartered in **Toronto, Canada**
- 20+ years experience
- 250+ feedstock studies completed for leading project developers, investors and governments
- >5 million tons of biomass supplied to customers
- Developers of US Standards for Biomass Supply Chain Risk [ecostrat.com/standards/] – to de-risk bio-project investment and facilitate project financing
- Leader of $50B Biomass Risk Ratings Committee composed of leading sector investors and lenders

[ecostrat.com]
Headquartered in New Brunswick, Canada
Servicing markets worldwide
Assesses the financial feasibility of new biogas plants
Feedstock optimization planning & modelling
Integrated feedstock, anaerobic digestion, greenhouse gas emissions, and financial models
Models the impact of changes to feedstock spanning several metrics
Wet and dry digester simulations
Sensitivity analysis on multiple variables simultaneously
Powerful & immediate reporting

anessa.com
“Converging market imperatives, environmental drivers and global growth projections for organics diversion and animal manure capture will require significant infrastructure investment over the next decade...along with a new industry approach to accelerate the deployment of biogas facilities around the world”.

C. Maloney
- $47B | Projected value of the biogas industry globally by 2026
- 1.6B | Number of tons of food wasted each year around the world
- 4.4Gt | Estimated number of CO2 eq. emissions per year from wasted food – 8% of total global GHG impact
- 250 | Estimated number of States, Cities and/or municipalities that have some form of food waste ban program
- $2.6T | Total estimated value of all food wasted each year globally
- 800M | Estimated number of people around the world suffering from hunger
- 4.5B | Amount of manure generated globally each year
- 1B | Number of tons of animal manure generated in the US each year
- 100,000 | Number of dairy cows on a single dairy farm in China
- 60M | Number of chickens to be bred each year by a single facility in China
- 3,150 | Number of new biogas plants China plans to build over the next decade
- 60B | M3 of biomethane production by 2030 is the goal from China’s Central Government
- 2030 | Year we start to run out of mined phosphorus for crop production
- 11% | Current projected CAGR for organic fertilizers in the US – demand has outstripped supply
- 150 years | How long it has taken us to reduce the world’s most productive topsoil for crop production by 50%
- 2B | Number of hectares globally that is moderately or severely degraded for food production
- 12% | Percentage reduction of greenhouse gas emissions that can come from the biogas industry within 10 years
And...it is predicted that we will add an estimated 2B people to the world’s population by 2050.
Thank You!

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“Biogas, the most sustainable of all biofuels, is on the verge of a major exponential growth curve”

Global Intelligence Alliance