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# Sustainable Energy for All: Opportunities for the Food and Agriculture Industry



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# Preface

In support of the United Nations Secretary General's *Sustainable Energy for All* initiative, the United Nations Global Compact and Accenture have partnered to identify the most important actions the private sector can take across nineteen different industries to advance the primary objectives of the initiative while simultaneously driving business value.

This body of work includes an introductory report that discusses the relationship between the initiative and the private sector in a broad sense, as well as 19 individual "Industry Opportunity" documents. In total, the objective is to provide guidance and to inspire companies across all industries to take action in pursuit of sustainable energy and benefits for their own companies.

This document provides an analysis of the opportunities *Sustainable Energy for All* presents to the food and agriculture industry. It identifies specific priority actions food and agriculture companies can take to advance the three objectives of the initiative—energy access, energy efficiency, and renewable energy—while also driving increased business value.

The priority actions identified for each industry are aligned to the vision and objectives of the *Sustainable Energy for All* initiative. They span multiple modes of engagement—operations, products & services, social investment and philanthropy, and advocacy and public policy engagement—and represent four different ways that businesses can create value: revenue growth, cost reduction, brand enhancement, and risk management.

As UN Secretary General Ban Ki-Moon wrote prior to the 2012 World Future Energy Summit, "Energy transforms lives, businesses and economies.... To succeed, we need everyone at the table—governments, the private sector, and civil society—all working together to accomplish what none can do alone.... The obstacles are not so much technical as human. We need to raise sustainable energy to the top of the global agenda and focus our attention, ingenuity, resources, and investments to make it a reality."

Addressing the world's energy needs is a way to advance society and also to advance sustainable value creation for the food and agriculture industry—while balancing positive economic, environmental, and social gains across the globe.

## About the Food and Agriculture Industry

The food and agriculture industry is comprised of companies that grow, process, and distribute food for human and animal consumption. The industry is marked by companies that grow and process food crops and raise, feed, and slaughter livestock to produce animal products. Food crops can include raw fruits, vegetables, and grains. Animal products can include meat, seafood, and dairy.

# Summary

The ambitious objectives of the United Nations *Sustainable Energy for All* initiative will require commitment and vigorous action from the private sector to drive investment, increase innovation in products and services, and increase operational efficiencies.

The food and agriculture industry consumes energy by harvesting, processing, and selling food. The industry relies heavily on petroleum-based fuels to power equipment and vehicles to harvest crops, raise livestock, and distribute the products produced. It also requires electricity and heat for manufacturing and processing. While increasing energy costs and decreasing margins have recently driven companies towards increasing energy efficiency, there is potential for additional improvement. There is also potential for companies in the food and agriculture industry to drive increased business value through renewable energy and through providing energy access in areas where modern energy services are limited.

Food and agriculture companies have a unique opportunity to use their waste streams to create new sources of revenue and reduce costs. Companies generate plant and animal matter that can be used as an energy source – either to generate energy on-site or as a feedstock for others to use. This can help reduce purchased electricity costs by generating energy on-site, and increase revenue through the sale of biomass. Additionally, on-site energy generation from renewable sources can protect against rising energy costs and help improve brand value as companies making investments to increase the use of renewable energy are often viewed as more sustainable to customers. Finally, food and agriculture companies have the opportunity, through the use of improved transportation and infrastructure, better insulation of food storage facilities, and reductions in packaging and food waste, to reduce energy consumption and improve efficiency across the operational profile.

For food and agriculture companies to advance their business opportunities related to energy access, energy efficiency, and renewable energy, the industry should focus on five priority actions—mapped to the business value levers, objectives, and engagement modalities of *Sustainable Energy for All*:

Priority Industry Actions	Business Value Levers	Objectives	Engagement Modalities
Create closed-loop systems that reuse waste streams as production inputs.	<ul style="list-style-type: none"> <li>• Cost Reduction</li> <li>• Risk Management</li> </ul>	<ul style="list-style-type: none"> <li>• Energy Efficiency</li> <li>• Renewable Energy</li> </ul>	<ul style="list-style-type: none"> <li>• Core Business: Operations</li> </ul>
Increase the energy efficiency of growing food crops.	<ul style="list-style-type: none"> <li>• Cost Reduction</li> <li>• Brand Enhancement</li> <li>• Risk Management</li> </ul>	<ul style="list-style-type: none"> <li>• Energy Efficiency</li> </ul>	<ul style="list-style-type: none"> <li>• Core Business: Operations</li> </ul>
Increase the energy efficiency of production, packaging, and transportation processes.	<ul style="list-style-type: none"> <li>• Cost Reduction</li> <li>• Brand Enhancement</li> <li>• Risk Management</li> </ul>	<ul style="list-style-type: none"> <li>• Energy Efficiency</li> </ul>	<ul style="list-style-type: none"> <li>• Core Business: Operations</li> </ul>
Increase the use of renewable energy to meet operational energy needs.	<ul style="list-style-type: none"> <li>• Brand Enhancement</li> <li>• Risk Management</li> </ul>	<ul style="list-style-type: none"> <li>• Renewable Energy</li> </ul>	<ul style="list-style-type: none"> <li>• Core Business: Operations</li> </ul>
Use waste streams to provide energy access in areas where access is limited.	<ul style="list-style-type: none"> <li>• Brand Enhancement</li> </ul>	<ul style="list-style-type: none"> <li>• Energy Efficiency</li> </ul>	<ul style="list-style-type: none"> <li>• Core Business: Operations</li> <li>• Social Investment and Philanthropy</li> </ul>



Ensuring Universal Energy Access



Doubling the Rate of Improvement in Energy Efficiency



Doubling the Share of Renewable Energy

## What Is *Sustainable Energy for All*?

Under the leadership of Secretary-General Ban Ki-moon, the United Nations is mobilizing key constituencies from the private sector, public sector, and civil society in a major global initiative, *Sustainable Energy for All*. The goal of the initiative is to catalyze action around three clear objectives to be achieved by 2030:

- Energy access: Ensuring universal access to modern energy services.
- Energy efficiency: Doubling the global rate of improvement in energy efficiency.
- Renewable Energy: Doubling the share of renewable energy in the global energy mix.

The *Sustainable Energy for All* initiative strives to mobilize bold actions and large-scale investments by fostering the enabling conditions for success, supporting cooperation and coordination across sectors, and tapping into a broad array of businesses and financiers. The initiative has the capacity to leverage a rapidly expanding knowledge network, disseminate

ideas, and monitor progress toward the initiative's objectives. It can "change the terms of engagement" by introducing new public-private partnerships based on synergies across relevant sectors of the economy and engendering constructive dialogue on policy, investment, and market development by governments, businesses, and civil society.

*Sustainable Energy for All* provides a clearly articulated global vision for sustainable energy and brings together the unparalleled global convening power and reach of the United Nations, which will help build consensus, drive a common agenda, and coordinate the actions of multiple entities at both the global level and the national levels, helping all entities work toward shared and mutually beneficial goals. *Sustainable Energy for All* brings together all relevant stakeholders in the sustainable energy area—the public sector, private sector, and civil society—on a common and open platform for communication and collaboration.

For more comprehensive information about *Sustainable Energy for All*, please go to: <http://www.sustainableenergyforall.org/>

# The Importance of Sustainable Energy for the Food and Agriculture Industry

## Innovation in the Food and Agriculture Industry

The food and agriculture industry has continually leveraged innovation to increase the energy efficiency of growing food and to utilize waste streams to increase the overall sustainability of their operations. These innovations are in large part due to the capital invested by food and agriculture companies in increasing crop production with less energy to feed a growing human and animal population. These innovations have allowed companies to meet growing demand, but more innovation and technology development is necessary to meet a potential world population of ~9 billion people by the middle of the century. Specific to *Sustainable Energy for All* and its objectives, the food and agriculture industry can drive innovation in several key areas:

- Energy-efficient food production
- Renewable energy use on farms
- Generation of renewable energy from farm/agricultural waste
- Energy-efficient processing and packaging

The innovations of the food and agriculture industry will not only help meet the food demand of a growing world population, but will also significantly increase the energy efficiency and renewable energy used across the globe. The food and agriculture industry utilizes a great deal of energy in its operations, especially in countries and areas where food production is a main component of the economy. The industry will continue to push thinking forward on sustainable energy, as well as enable other industries and sectors to provide sustainable energy access, increased energy efficiency, and increased renewable energy use.

The food and agricultural industry can be very energy-intensive in planting, harvesting, processing, transporting food. Process heating and cooling systems represent the highest level of energy use in the food and agricultural industry. This can include steam systems, ovens, furnaces, and refrigeration units, which represent over 75 percent of the industry's energy use and are necessary to maintain food safety. Motor-driven systems such as pumps, fans, conveyors, mixers, grinders, and other process equipment represent 12 percent of the industry's energy use, and facility functions (heat, ventilation, lighting, etc.) comprise approximately 8 percent.<sup>1</sup> These percentages can differ based on the food product, as the production, processing, packaging and distribution of food crops and animal products can vary substantially.

On the national level, the amount of energy devoted to food and agriculture will vary depending on whether a country is a net importer or net exporter of food and on how much food is produced. In the United States, which is one of the world's largest food producers, the energy consumed by the food and agriculture industry accounts for nearly 19 percent of all energy consumed in the country.<sup>2</sup> It is estimated that globally, the food chain (including input manufacturing, production, processing, transportation marketing and consumption) accounts for approximately 30 percent of global energy consumption and produces over 20 percent of global greenhouse gas emissions.<sup>3</sup>

Companies can modify current practices at each stage of the food supply chain to reduce energy intensity. Some efficiency gains can often result from inexpensive adjustments of existing farming and practices. Actions that can be taken at the farm level include the use of more fuel efficient engines, the use of compost and precision fertilizers, irrigation monitoring and targeted water delivery, adoption of no-till farming practices and the use of less-input-dependent crop varieties and animal breeds.

After food has been harvested, improved transportation and infrastructure, better insulation of food storage facilities, reductions in packaging and food waste, and more efficient cooking devices offer the possibility of additionally reducing energy use in the food industry.

According to the Food and Agriculture Organization of the United Nations, both on-farm and post-harvest losses add up to around one-third of all food produced; and the energy that is embedded in that food is consequently lost or wasted.<sup>4</sup> This statistic alone underlines the importance of energy efficiency and renewable energy in the food and agriculture industry.

## The Business Opportunity Presented by *Sustainable Energy for All*

In taking actions to advance the three objectives of *Sustainable Energy for All*, the extent of this unprecedented, rapid change will provide companies with new opportunities to drive sustainable business value in a manner that aligns to their core strategies. To seize these opportunities, there are four engagement modalities companies can address as they implement the identified priority actions:

1. Core Business – Operations: Businesses can transform their operations through increased energy efficiency and the use of renewable energy alternatives.
2. Core Business – Products and Services: Businesses can innovate and modify their core products and services to meet the new and developing market demands for

more energy efficient products, sustainable energy, and the infrastructure needed to extend energy access around the world.

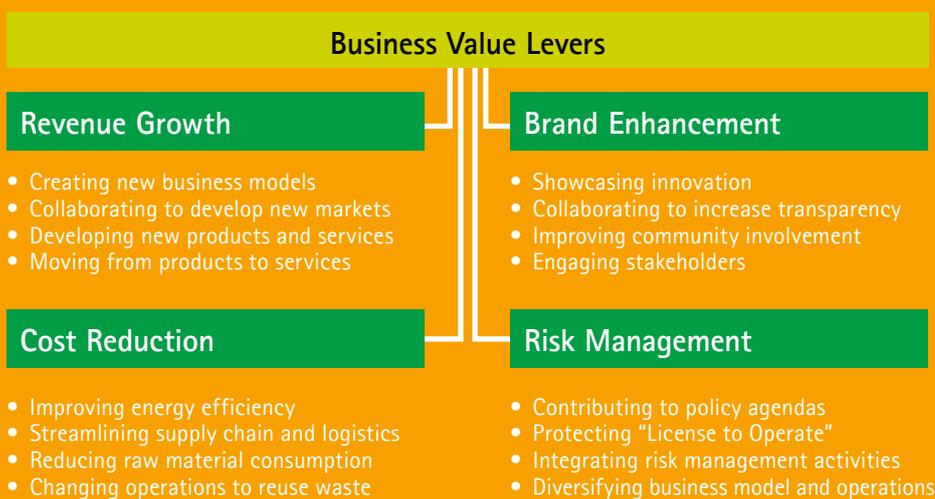
3. Social Investment and Philanthropy: Businesses can identify ways to establish a strategic link between social investments and their core strategies to increase the likelihood that such activities will be sustained and able to reach scale.
4. Advocacy and Public Policy Engagement: Businesses can seek to engage governments (national, regional, or local) on relevant issues that protect competitiveness and drive opportunities, while working toward the objectives of *Sustainable Energy for All*.

*Sustainable Energy for All* provides a platform to address global financial, social, and environmental concerns associated with energy. Ultimately, in working toward the achievement of the three objectives of the initiative—energy

access, energy efficiency, and increased use of renewables—businesses also have significant opportunities to drive sustainable value. Especially important are four value levers related to revenue growth, cost reduction, brand enhancement, and risk management.

## Which Actions Will Your Company Take to Drive Value?

The particular actions a company chooses to drive business value depend on a range of factors: its unique attributes and energy characteristics; its business model, corporate strategy and consumer base; and external factors such as level of regulation and economic context. Each of the priority actions in this document is aligned to one or more of the four business value levers described here.



## Sustainable Energy as a Value Driver for the Food and Agriculture Industry

The food and agriculture industry relies heavily on petroleum-based fuels to power equipment and vehicles to harvest crops and raise livestock. It also requires electricity and heat for manufacturing and processing. While increasing energy costs and slim margins have driven companies towards increasing energy efficiency, there is ample potential for additional improvement. Companies have the opportunity to use their waste streams to generate energy and to use innovative irrigation methods to improve energy efficiency.

Companies in the industry that have already embarked on energy efficiency programs have benefited from tangible cost-savings. For example, by conducting product life cycle assessments and investing in energy-saving industrial equipment, Nestle has been able to save approximately 8 million gigajoules of energy and reduce greenhouse gas emissions by approximately 191,000 tons in 2011.<sup>5</sup> In addition, companies can drive business value by increasing the percentage of renewable energy in their overall energy mix. This alone can drive

brand enhancement and manage risks associated with variable energy prices. Food and agriculture companies have a unique opportunity to use their waste streams to create new sources of revenue and reduce costs of energy production on-site. Companies generate biomass, which is a renewable energy source comprised of any plant or animal matter that can be converted into fibers and industrial chemicals, including biofuels. Biomass can be derived from sources such as unused parts of crops and landfill gases. On an industrial level, biomass is created from grown food crops such as corn, sugarcane and coarse grains. The unique ability to generate energy on-site can both reduce purchased electricity costs and increase revenue through the sale of biomass.

Lastly, food and agriculture companies must transport their goods to reach customers and retailers. Transportation is highly energy-intensive, especially when food produce often requires refrigeration. Through the use of improved transportation and infrastructure, better insulation of food storage facilities, reductions in packaging and food waste, and reductions in the distance between where food is produced and consumed are all business opportunities for reducing the energy use in the industry.

# Priority Actions for the Food and Agriculture Industry

The following section provides detail on the five priority actions that the food and agriculture industry can take to become more energy efficient and to advance their business opportunities in the sustainable energy market:

1. Create closed-loop systems that reuse waste streams as production inputs.
2. Increase the energy efficiency of growing food crops.
3. Increase the energy efficiency of production, packaging, and transportation processes.
4. Increase the use of renewable energy to meet operational energy needs.
5. Use waste streams to provide access to energy in areas where access is limited.

## 1. Create Closed-Loop Systems that Reuse Waste Streams as Production Inputs.

As inputs to production, the food and agriculture industry relies heavily on electricity and transportation fuels, fertilizers (such as phosphorous, nitrogen, and potassium), and water. The availability and price of these inputs, and the manner in which they are used, have a significant impact on crop production, costs and net returns. Food and agriculture companies should identify opportunities to reuse waste streams to increase energy efficiency and evaluate alternatives to energy-intensive production and operational inputs.

Currently, the food and agricultural industry supports global biofuel production by providing feedstocks such as sugarcane and coarse grains. These inputs are used to make first generation biofuels, but growing these crops requires the use of fertilizer, water, energy and fuel and may cause food

shortages in some countries. Nevertheless, the industry has the opportunity to advance the availability of commercial-scale second generation biofuel, which is manufactured from biomass. It consists of food and agricultural waste and residuals, and non-food crops, thus providing renewable sources of energy without threatening the supply of food. Second generation biodiesel production is expected to grow in developed countries to represent about 10% of total biodiesel in 2020.<sup>6</sup>

Another source of renewable energy is organic waste gases. Food waste in a landfill produces gas consisting of 60 percent methane and 40 percent carbon dioxide, which can be captured and used to produce electricity.<sup>7</sup>

For example, an energy company in California has partnered with the local government and waste recovery company to use waste from local egg farms to generate methane gas and power a 1.4 megawatt fuel cell. The project will sell the gas to the local utility and provide leftover waste as fertilizer.<sup>8</sup> Using waste as an energy source helps to create a more efficient, closed-loop system, and can drive significant cost savings. It can also increase the amount of renewable energy the industry uses, enhancing brand value.

Water is another energy-intensive input to agricultural production that can be reduced through the use of grey water applications. Grey water is waste water generated from domestic activities such as laundry, dishwashing and bathing. Some municipal sewage systems recycle grey water and provide it for use in irrigation. Reusing water can ultimately reduce the energy that would otherwise be required to treat and redistribute waste water.

Creating closed-loop systems will require both upfront capital and operational changes, however they can yield cost savings and put measures in place for a more sustainable future through energy efficiency and the use of renewable energy.

### Case Study: Netafim Increases the Efficiency of Cotton Production in India

Cotton is an important commercial crop and plays a vital role in the textile industry in India. As an irrigated crop, it is extensively grown in areas where conventional irrigation methods are commonly used. However, the seed cotton yields and water use efficiency achieved with these methods are very low. In several countries including the US, Australia, Israel, Egypt and others, new irrigation technologies such as drip irrigation have been introduced for cotton.

Implementing drip irrigation to grow cotton not only enables the efficient use of every drop of applied water but also leads to enhanced crop growth and yield advantages. This is due to maintenance of uniform soil moisture regime in the crop root zone by way of frequent irrigations at shorter intervals. Besides irrigation, a major component of profitable cotton production is sound and balanced fertilization. "Fertigation" (i.e., application of fertilizers via irrigation system) ensures the efficient use of nutrients, fertilizer conservation, environmental protection and economics of cotton production.

Netafim conducted a farm trial to demonstrate the benefits of drip irrigation in cotton in India. In addition to other benefits, the results demonstrated an improved yield and 41.6% water savings, and translates directly to a savings in energy costs, as less energy is needed to move water.<sup>9</sup>

## 2. Increase the Energy Efficiency of Growing Food Crops.

As the world population rises, farmers face the challenge of producing more food with less energy, less water, and less fertilizer. This great challenge can be met by increasing the efficiency of growing food. The following innovations can be considered in achieving this goal.

Globally, more than 25 billion tons of nutrient-rich topsoil is lost on an annual basis which leads to increased energy inputs in production, decreased food security, and reduced productivity. The loss of the most important macronutrients in the soil has been partly compensated for by chemical fertilizers, which is a costly and energy-intensive solution.<sup>10</sup> There are a host of strategies that can reduce the use of chemical fertilizers and also increase the energy efficiency of growing crops through innovative measures such as incorporating waste streams. For example, incorporating alternative soil amendments such as plant and animal by-products, the use of flame weeding, cover crops and manures, nitrogen-fixing crops in rotations, composting, and integrated pest management can improve the quality of soil while reducing the use of chemical-based fertilizers and pesticides.

Another energy-intensive area in the industry is milk production. Dairy farms rely on electrical energy for milking (vacuum pumps), cooling and storing milk, heating water, and lighting. Opportunities for cost savings and improved energy efficiency can include variable speed drives for milk vacuum pumps and milk transfer systems, plate pre-coolers, heat recovery systems, energy-efficient light fixtures and efficient ventilation systems.

For example, the milking process vacuum pumps can consume up to 25 percent of all electrical energy use on a dairy farm.

By incorporating variable-speed drives in the vacuum system, energy operating costs can be reduced by up to 60 percent. Furthermore, the use of heat exchangers in the milk cooling process can yield energy savings of up to 60 percent.<sup>11</sup>

Further opportunities for energy savings can be found in tillage and farm tractors. Simple measures such as ensuring proper tire inflation, regular vehicle maintenance, and reduced idling can improve vehicle fuel efficiency. In addition, farmers can explore the use of electric farm tractors, which could significantly reduce energy costs.

Where applicable, companies should consider adopting reduced-till or no-till farming. This practice can increase crop yields, conserve soil moisture, and reduce time and energy consumed in the field. Farmers can also use overlap reduction systems such as auto-steer, obstacle isolation, and proper equipment sizing to gain significant reductions in fuel use and equipment wear.

Drip irrigation is a method of providing nutrients and water to crops that minimizes the waste of the nutrients and water. It can require little to no energy and can drastically increase the energy efficiency of growing food. Drip irrigation can increase yields by up to 50% while saving up to 40% in water consumption.<sup>12</sup> It can also save energy required to pump, filter, and transport water in areas with little or no rainfall.

### 3. Increase the Energy Efficiency of Production, Packaging, and Transportation Processes.

Food processing requires energy for heating, cooling, and electricity. The total energy demand for food processing is around three times the direct energy consumed in food production. Also, energy is embedded in the packaging, which can be relatively energy-intensive due to the use of plastics and aluminum. In addition, the need for canning, freezing, drying, curing or cold storage can increase energy demands.

According to the Food and Agriculture Organization of the United Nations, food processing facilities that are highly energy-inefficient can use more than 50 percent of the energy compared to the best available technologies. This provides a significant opportunity for reducing energy demand and its associated costs. For example, Cargill, one of the largest food and agriculture companies in the world, was able to reduce the annual electricity usage of one of its beef processing plants by more than 2 million kilowatt hours. The company spent \$4.2 million in installing new lighting, a new boiler system, and a facility-wide energy management system, which has resulted in an 11 percent increase in the plant's steam efficiency, a 4 percent improvement in electrical efficiency, a 5 percent increase in fuel efficiency and a 7 percent reduction in water use.<sup>13</sup>

In less energy-efficient, smaller-scale food processing plants in many non-OECD countries, opportunities exist to introduce improved technologies and practices. Even though energy bills are typically only 5-15 percent of total factory costs, general maintenance on older, less-efficient processing plants can often yield energy savings of 10 to 20 percent with little or no

capital investment. Medium-cost investment measures, such as optimizing combustion efficiency, recovering the heat from exhaust gases and selecting the optimum size of high efficiency, electric motors, can yield energy savings of between 20 to 30 percent. Greater savings are possible, but they usually require more substantial capital investment in new equipment.<sup>14</sup>

Furthermore, companies should take measures to reduce the size and weight of packaging, increase the amount of recycled materials, and allow for packaging that can be composted or recycled. Removing or reducing plastics and metals from packaging is another common practice, especially among large-scale food processors.

Finally, companies should continue to provide food to local markets, thereby reducing the distance a particular food product travels from "farm to plate." In recent years, the local-food movement has been gaining momentum in developed and developing countries alike. In the United States alone, sales of locally grown foods, worth about \$4 billion in 2002, is expected to grow to as much as \$7 billion in 2012.<sup>15</sup> However, distance is not the only factor and other energy-consuming aspects of production should be considered such as water use, harvesting techniques, fertilizer outlays, renewable energy applications, means of transportation, packaging, storage procedures etc. should be considered. By taking a life-cycle analysis approach to their products, companies can enhance customers' insight into the many factors that determine the energy-intensity of a food product.

#### 4. Increase the Use of Renewable Energy to Meet Operational Energy Needs.

The food and agriculture industry uses energy in the form of transportation fuels and electricity. The industry is uniquely positioned to leverage its products, waste and land to increase the use of renewables into its energy mix. Producing heat from the combustion of biomass for drying, steam-raising and cooking is the main energy demand for processing meat, milk powder, and bread products. In large-scale plants, co-generation of heat and power using biomass available on-site can be a profitable activity.<sup>16</sup> The case for the use of renewable energy is strong; food and agricultural companies can generate energy on site with biomass, diversify their energy mix to manage risk and provide for energy access in rural areas.

In addition, using wind and solar are viable options given the open land and large roof surfaces common to processing plants. Many farms have generated revenue by hosting wind turbines, which take up very little space and allow for simultaneous production. There are many examples of how companies have used renewable energy to reduce purchased electricity and enhance their brand. For example, PepsiCo, a food company that already generates 159,000 megawatt hours of renewable energy a year, invested \$30 million dollars towards new renewable energy projects at facilities in the United States. This investment represented a shift in PepsiCo's focus from purchasing renewable energy credits to generating more onsite renewable energy while still supporting PepsiCo's goal of using renewable energy to power 100 percent of its facility operations.<sup>17</sup>

#### 5. Use Waste Streams to Provide Energy Access in Areas where Access is Limited.

Just as renewable energy from biomass can be used to provide energy on-site, it can also be used to supply energy in rural areas where access to both electricity and clean cooking fuels is limited. Food and agriculture companies often have operations in rural areas, where the availability of a reliable and affordable energy supply can become an essential component for sustainable development.

Companies have various opportunities to drive shared value, create new market opportunities, and improve social conditions in the surrounding community through their operation. Especially in areas where access to clean cooking fuels is limited, food and agriculture companies have an opportunity to provide biomass waste as biofuels to communities that lack access to clean cooking fuels. For example, in India, 80,000 of villages lack electricity. A new company is providing electricity, by burning rice husks, a waste byproduct of rice milling, to produce a gas to power a generator. Thus far, the company has provided electricity to 10,000 rural Indians with plans to expand.<sup>18</sup>

It is likely that this type of initiative will require cross-industry partnerships—for example, working with a sanitation company and fertilizer company to help with the reclamation and formulation of the waste as energy. There are also potential opportunities for private-public partnerships with governments to transfer energy to underserved local communities. Through partnerships, food and agriculture companies can advance the *Sustainable Energy for All* objectives while enhancing brand value and potentially increasing revenues.

## Conclusion

The priority actions identified in this document are meant to provide guidance and inspire food and agriculture companies to take action to advance the three objectives of the *Sustainable Energy for All* initiative while simultaneously maximizing their realized business value. It is vital that the private sector be fully engaged and committed to successfully achieve the initiative's ambitious objectives. With the right level of support, coordination, and action the power of industry can be unleashed to ensure universal energy access, dramatically improve the energy efficiency of business operations, increase the use of renewable energy, and develop more sustainable products and services. Actions focused on achieving the desired outcomes of *Sustainable Energy for All* will drive significant positive societal change in addition to economic growth and opportunity.

Food and agriculture companies rely on petroleum-based fuels to power equipment and vehicles that harvest crops, raise livestock, and transport the products. Electricity and heat are also required for manufacturing and processing. All of these areas represent opportunities to reduce consumption and improve energy efficiency. Additionally, the food and agriculture industry has the opportunity to drive increased business value through renewable energy with first and second generation biofuels, as well as biogas waste. Finally, it can leverage these waste streams and residuals to provide energy access in areas where modern energy services are limited.

For food and agricultural companies to advance their business opportunities related to energy efficiency and renewable energy, the food and agriculture industry can focus on the five priority actions detailed in this document. By focusing on these actions, the food and agriculture industry will be able to maximize its contribution to *Sustainable Energy for All*, increase business value, and ensure a sustainable future based on a balanced approach to improving social, environmental, and economic benefits for all.

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### About the United Nations Global Compact

The United Nations Global Compact is a call to companies everywhere to: (1) voluntarily align their operations and strategies with ten universally accepted principles in the areas of human rights, labor, environment and anticorruption and (2) take actions in support of UN goals, including the Millennium Development Goals. By doing so, business can help ensure that markets advance in ways that benefit economies and societies everywhere. Endorsed by chief executives, the UN Global Compact is a leadership platform for the development, implementation, and disclosure of responsible corporate policies and practices. Launched in 2000, it is the largest corporate responsibility initiative in the world—with over 7,000 signatories based in more than 135 countries, and Local Networks existing or emerging in 90 countries. More information: [www.unglobalcompact.org](http://www.unglobalcompact.org).

### About Accenture

Accenture is a global management consulting, technology services and outsourcing company, with more than 249,000 people serving clients in more than 120 countries. Combining unparalleled experience, comprehensive capabilities across all industries and business functions, and extensive research on the world's most successful companies, Accenture collaborates with clients to help them become high-performance businesses and governments. The company generated net revenues of US\$25.5 billion for the fiscal year ended Aug. 31, 2011. Its home page is [www.accenture.com](http://www.accenture.com).

### About Accenture Sustainability Services

Accenture Sustainability Services helps organizations achieve substantial improvement in performance and value for their stakeholders. We help clients leverage their assets and capabilities to drive innovation and profitable growth while striving for a positive economic, environmental and social impact. We work with clients across industries and geographies to integrate sustainability approaches into their business strategies, operating models and critical processes. Our holistic approach encompasses strategy, design and execution to increase revenue, reduce cost, manage risk and enhance brand, reputation and intangible assets. We also help clients develop deep insights on sustainability issues based on our ongoing investments in research, including recent studies on consumer expectations and global executive opinion on corporate sustainability and climate change.

Find out more at [www.accenture.com/sustainability](http://www.accenture.com/sustainability)

### Contact us

The United Nations Global Compact and Accenture encourage leadership from all industries around the world to engage with the *Sustainable Energy for All* initiative. To do so, please contact:

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