

2 | Section | A Focus on Land



TECO Energy's subsidiaries operate in Florida, Kentucky and Virginia, and Guatemala. All of these areas are rich in the heritage of societies that held the environment sacred, that grew and flourished on now-famous shores, in the shadow of mountains, and in the prehistoric splendors of the Mayan culture.

Operating in areas with a history of protecting the environment, TECO Energy, in the 21st century, can do no less.

TECO Energy's responsibilities to the land center around a theme of stewardship; innovative land use and re-use; and efficient recycling of the byproducts of electricity generation.

LAND USE

Within TECO Energy subsidiaries, stewardship of the land centers around innovative land use and re-use, as well as efficient use of the byproducts of electricity generation. Innovative land use is best exemplified at Tampa Electric's Polk Power Station.

When Tampa Electric began siting the station, it became a community focus. In the mid-1980s, the company assembled a blue-ribbon task force consisting of environmental, business and education leaders to help select the site for the much-needed plant. The plant now resides on the location they selected: 4,300 acres of former phosphate mining land in Polk County. The company expects to donate a 1,500-acre parcel of the original 4,300-acre site to the State of Florida, where it will be managed by FDEP

and the Florida Fish and Wildlife Conservation Commission as a wildlife conservation area.

TECO Coal's history with reforestation of mined lands ranges from initial work with the University of Kentucky on compaction levels of reclaimed mine land conducive to tree growth to an ongoing commitment of large acreages of mined land for the establishment of forest land.

Emphasis on reclamation: *TECO Coal's efforts to reclaim mined land have won the company recognition from various reforestation organizations and the states of Kentucky and Virginia.*



Beneficial Use of Coal Combustion Byproducts (2006-2007)

POWER STATION	PRODUCT	TONS PRODUCED	TONS DISPOSED	TONS SOLD	% USE REUSED
Big Bend Power Station	Flyash	557,690	18,645	539,045	96.6
	Bottom Ash	70,467	0	70,467	100.0
	Gypsum	1,201,750	893	1,200,857	99.9
	Slag	74,020	5,055	68,965	93.0
Polk Power Station	Slag	77,616	7,332	70,284	90.1
	Sulfuric Acid	110,951	0	110,951	100.0

BYPRODUCTS

Tampa Electric aggressively minimizes pollution and markets byproducts of its power plant operations. The recycling and reuse of coal combustion byproducts produced at the company’s coal-burning power facilities has had a beneficial impact on the environment. Byproducts are used to support industries important to the area’s economy. The beneficial use of these products reduces consumption of natural resources, as well as valuable landfill space.

Over 98 percent of combustion byproducts generated in 2006-2007 were marketed to customers for beneficial use. (See table above.)

At Big Bend, as part of the SO₂ removal system, coal combustion exhaust gases are sprayed with a slurry of water and limestone in the scrubbers. The chemical reaction of the slurry with the exhaust gases results in the formation of synthetic gypsum – a material which is

ultimately used to manufacture wallboard – in the production of cement and as an agricultural soil supplement. Other coal combustion byproducts are recycled for local and regional use. Flyash is used in cement and concrete for construction, while slag is used in roofing shingles or as grit blasting material.

Polk Power Station produces about 40,000 tons of slag and char annually, virtually all of which are beneficially used. Slag can be used as an aggregate for concrete manufacturing, so the slag from Polk is not disposed of in landfills and valuable natural aggregate does not need to be mined. Separating and recycling char recovers its energy value, and it can be used as a fuel source for power generation. Sulfuric acid, produced in Polk’s processes, is used to help purify water and is sold to the phosphate industry for use in the production of fertilizer. Income streams from Tampa Electric’s byproducts aid in controlling electricity prices to customers.

SOLID AND HAZARDOUS WASTE DISPOSAL

Given the magnitude and complexity of the company's power operations, hazardous waste generation and disposal quantities from Tampa Electric's operations are normally comparatively small.

The total quantity of hazardous waste generated at Tampa Electric's facilities in 2006 was 31,000 pounds. In 2007, the quantity was 400,000 pounds. This increase was mainly due to two large equipment cleaning projects that resulted in almost 70 percent of the total. The remainder consisted mainly of paint wastes and thinners and halogenated spent refrigerants. Liquid hazardous wastes are sent either for blending as alternative fuels or for incineration. Solid hazardous wastes were stabilized and landfilled at Resource Recovery and Conservation Act-permitted sites.

Tampa Electric also has established on-site and off-site recycling programs for antifreeze, used oil, paint and solvents, bulbs, batteries, mercury and mercury-containing devices, pesticides and scrap metal.

The company sells excess, damaged or obsolete materials, such as office furniture, computers and light fixtures. Power poles are often donated to the public for use as timbers in constructing fences and other structures. Wherever feasible, the company refurbishes oil-filled equipment, such as transformers, oil switches and bushings, by repairing and returning them to service. At TECO Coal, amounts of generated hazardous wastes are insignificant. All such wastes are transported offsite to licensed facilities for recycling or disposal.

Big Bend Power Station. The coal-fired facility was the catalyst for restoring the nearby 12-acre fisheries habitat at Newman Branch Creek and building the adjacent "green" South Shore Community Events Center for the public.

LAND REGULATIONS

The Florida Department of Environmental Protection has established standards for the construction, operation and closure of solid waste management units. Various aspects of Tampa Electric's operations are subject to these regulations, impacting the materials management practices associated with coal combustion byproducts, including slag, flyash and gypsum.

Tampa Electric

Big Bend Comprehensive Improvements

Each unit at Tampa Electric's Big Bend Power Station was permitted and constructed in accordance with all applicable regulations in place at the time of its construction (1970s for Units 1-3 and 1980s for Unit 4). Although each component of the station met all of the applicable regulations when it was constructed, additional design requirements and standards have since been put in place.

Tampa Electric has been working with the FDEP to address current regulations and current construction practices. Land regulations are closely related to industrial wastewater and storm water regulations, as they affect operations and overall compliance with applicable requirements at Tampa Electric's facilities.

Tampa Electric conducted a comprehensive environmental study in 2002 and 2003 to develop a plan to address





Big Bend Power Station. In addition to the installation of more than \$700 million in state-of-the-art pollution control technology, the Big Bend facility also has several projects completed or underway to address land and water responsibility.

land and water issues at Big Bend, its largest coal-fired power plant. Based on that study, the company has voluntarily implemented a number of large projects at Big Bend, including:

- Lining/redesigning solids settling ponds and recycle water ponds to improve the industrial wastewater management system. This is expected to minimize impact to groundwater or surface water and ensure compliance with groundwater standards.
- Replacing the slag pond with totally-enclosed above-ground slag bins.
- Lining the gypsum byproduct storage area, which will help reduce groundwater/surface water impacts due to runoff or seepage.

*(Also see **Settling and Recycle Pond System** under **Section Three on Water.**)*

Storage Areas

Current power plant design practices require that some solid waste management units be lined to ensure compliance with groundwater and surface water standards. The company is proceeding with a project that replaces the slag pond with totally enclosed aboveground slag bins. The slag dewatering bins and piping system will be constructed while the existing slag pond system remains in service so the plant can continue uninterrupted operations. Following completion of the slag bins, Tampa Electric plans to dredge out the slag ponds to remove the remaining slag. The ponds will then be refurbished to serve as part of the newly constructed stormwater management system for the site. Tampa Electric also will line the gypsum byproduct storage area.

*Left: Reclaimed mined land. Center: **Premier Elkhorn Operations.** Right: Recycled large equipment tires are sold for use as watering troughs for elk in national parks in the western United States.*



TECO COAL

Kentucky-based TECO Coal has promoted the development of reforested mine lands as a viable reclamation technique. The company's environmental goals are to protect the environment, reclaim and improve mined areas and enhance wildlife habitat. As part of a continued commitment to being a good corporate citizen, reclamation of post-mined land is a high priority for the company.

Since trees provide one of the most effective vehicles known for absorbing and storing carbon, the company has planted nearly one million trees, mostly native species that are predominately mixed hardwoods. This effort includes a joint project between the University of Kentucky Forestry Department and TECO Coal's Premier Elkhorn Company, which planted 121,920 trees on over 170 acres in McRoberts, Kentucky, in February 2005. Future surface mining permits will include, as part of the post-mining land use outline, a provision to recreate forest lands with hardwood trees.

TECO Coal and its affiliate companies have been honored 12 times by various reforestation organizations and by the states of Kentucky and Tennessee for exceptional reclamation accomplishments. In 2006, Gatliff Coal Company, which is part of TECO Coal's family of companies, was awarded the Excellence in Reforestation Award by the Appalachian Regional Reforestation Initiative.

TECO Coal has been, for the last four years, actively involved with the Corbin High School Environmental Studies Class doing field work on quantifying forest

growth and quality. This was a joint effort with the federal office of Surface Mine Reclamation and Enforcement.

TECO Coal also recycles and reuses materials of its mining process. Heavy equipment generates almost all of the recyclable metals sent out of its operations annually. Old equipment is used for parts until there are no economically significant parts remaining for reuse. The frames and other components of the machines are then recycled for their scrap metal value.

The company also sells large equipment tires that a third party converts into watering troughs for elk in national parks in the western United States. Other parts of the tires are used in the manufacture of industrial and agricultural implements, such as scrapper blades and bucket linings. Scrap rubber is sent to industrial burners for steam generation for either heat value or power generation. The company also has devised a method for using old equipment tires to establish road barriers (guard rails) rather than sending them to landfills.

The company's operations are subject to various federal, state and local air and water pollution standards. In 2007, TECO Coal spent about \$2.6 million on environmental protection and reclamation programs. The Surface Mining Control and Reclamation Act of 1977 places charges of 15 and 35 cents on every net ton of underground and surface coal mined, respectively, to create a fund for reclaiming land and water adversely affected by coal mining. For 2007, TECO Coal paid nearly \$2 million for reclamation through this program.

PEOPLES GAS

When Peoples Gas installs new underground pipelines, it minimizes impact to sensitive habitats such as wetlands by using a boring technique. Boring rather than trenching a wetland reduces the effect on the habitat.

Though no species are known to be threatened by its

operations, Peoples Gas identifies the gopher tortoise within pipeline projects. If tortoises are known to reside within a project site, the company will either change the location of the line or relocate the tortoises.



Above left: **Peoples Gas** team members discuss pipeline installation. Above right: **Gopher tortoise**.