

*Designing, Structuring, and Implementing a Brownfields Approach for
Reuse of Contaminated Sites and Landfills to
Unlock Intrinsic Real Estate Value,
Create New Neighborhoods and Usable Places
and Amplify Sustainability*



Creating community-based brownfield
redevelopment strategies



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I. Introduction and Background

As of January 25, 2011, what is a "Brownfield Site"?

➤ Federal Statutory Definition

- "Real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant."

Small Business Liability Relief and Brownfields Revitalization Act" signed into law January 11, 2002

➤ State Statutory Definitions

➤ Generic Definitions

Brownfields Risk Proposition

- Environmental Regulatory Risk
- Third Party Liability Risk
 - Property Damage Suits
 - Cost Recovery Suits
 - Toxic Tort Suits
- Financing Risk
- Risk of Impact to Design, Schedule & Budget
- Direct Costs of Assessment & Remediation

Brownfields Value Proposition

- Ability to Access Intrinsic Use, Location, & Demographics Value of Site
- "Buy Low/Sell High"
- Reuse Provides Funding Mechanism for Cleanup
- Broad Array of Economic, Regulatory Incentives
- Preservation, Restoration, Protection
- Powerful Redevelopment Catalyst
- Sustainability Jump Off Point
- Stability and Security for Capital
- Public Hearts & Minds

Crossing the Divide: From Risk to Value

- Transactional Structure
- Use of Releases and Indemnities
- Environmental Insurance
- Risk Based Corrective Action
- Strong Legal Team
- Strong Technical Team
- Legal, Technical, and Financial Underwriting
- Capital Stack
- Integration of Cleanup & Redevelopment

II. The "New Economy" and Its Influence on the Marketplace for Brownfields Redevelopment

- Current Market Conditions
- Sustainability and Greening of End Uses and Job Creation as Redevelopment Springboard
- Renewable Energy as New End Use and Market Surrogate

Making the Case: *Still* Prime Time for Brownfields

- Over 1 million Brownfield sites in the U.S.
- Over 15 million acres of contaminated land
- Strong institutional and cultural support within U.S. EPA and state regulatory agencies
- Excellent federal partner support
- Mature state regulatory network
- Highly Attractive to Local Government Planning & Economic Development Officials
- Widespread Acceptance in the Private Sector

Still Prime Time for Brownfields

- According to the Northeast-Midwest Institute:
 - The EPA Brownfields Program has leveraged \$11.3 billion in new investment and created 48,238 jobs as of March 2008
 - Cleanup and redevelopment projects lead to 5%-15% increase in value of properties up to $\frac{3}{4}$ mile from the site.

See Northeast-Midwest Institute, *Environmental and Economic Impacts of Brownfields Redevelopment* Working Draft for Distribution (July 2008), <http://www.nemw.org/EnvironEconImpactsBFRedev.pdf>.

Green Jobs on Brownfields

US Green Job Growth

Source: Evans Paul, Redevelopment Economics

➤ USCM projection:

- 750,000 currently to more than 4.2 million by 2038.

➤ Apollo Alliance:

- 380,000 in component parts manufacturing for renewable energy

➤ Pew Climate:

- Jobs in renewable energy grew 9.1% annually, 2003-2007

➤ American Solar Energy Society (ASES)

- Jobs in energy efficiency and renewables grew by 8.4 mil in 2007
- Will grow to 38 mil by 2030 (35% of the economy).

Green Jobs on Brownfields

Green Job Strategies that Target Brownfields – Local Models

Source: Evans Paul, Redevelopment Economics

➤ Los Angeles

- Developed a “clean tech” campaign
- Targeted a 20-acre brownfield site for a green tech cluster
- Established two green job incentive funds:
 - a \$15 million port-related Technology Advancement Program (TAP);
 - Los Angeles City Employees’ Retirement System - \$46 million set aside.



Green Jobs Energy on Brownfields PA Steel Mill Anchored by Renewable Energy Component Manufacturers

Source: Evans Paul, Redevelopment Economics

Keystone Industrial Port Complex in 2,400-acre US Steel, Fairless Hills, PA

- Start-up solar material manufacturer AE Polysilicon Corporation,
- Spanish wind energy manufacturer Gamesa Wind US LLC, and
- Bard Bio-fuels, a 60 Mgy soybean-based biodiesel plant



Incentives - \$11.92 million in loans, grants, tax incentives

Dollars Leveraged: \$104 million

Jobs Leveraged: 450

Green Jobs on Brownfields Detroit (Wixom) Bets on Energy Park Reuse of Ford Plant

Source: Evans Paul, Redevelopment Economics

- Renewable energy park
- 2,800 jobs
- Xtreme Power (advanced battery manufacturer)
- Clairvoyant Energy (PV manufacturers)
- \$100 million in tax breaks



Transportation – Brownfields and VMT's

Source: Evans Paul, Redevelopment Economics

- New (unreleased) EPA Case Studies of 5 sites:
 - 21% - 58% lower VMT's
- Clean Air-Brownfields Project:
 - Dallas and Baltimore case studies: Brownfields vs greenfields, saves:
 - 22% - 55% VMT's
 - 40% - 87% - NOX
 - 36% - 73% - VOC's
- Atlantic Station EPA Analysis
 - Atlantic Steel (vs. 3 alternate suburban sites) saves:
 - 14% - 52% VMT's
 - 37% - 81% - NOX
 - 37% - 81% - VOC's

Increasing Pace of Green Buildings on Brownfields

Brownfields and Green Buildings Projects

City/Project Name	Development	Status 1/08	Green Elements	Federal Funds
Baltimore, MD – Montgomery Park	1.3 million sq ft office; 3,500 jobs	55% occupied	Green roof; energy-efficient, recycled building materials; bio-retention; recycled grey water	\$1 million BEDI \$8 million HUD 108 Historic tax credit
Portland – South Waterfront	Mixed use – Phase I: 3,000 DU's 5,000 jobs	Several bldgs complete	All bldgs LEED certified, some LEED gold/platinum; solar; trail/open space; stream restoration	EPA cleanup grant for park
Baltimore, MD – Brewer's Hill	737,000 sq ft commercial/mixed use space	First phase complete	Green roof; grey stormwater system; recycled materials; 25% energy efficiency savings	EPA site assessment Historic tax credits
Cambridge, MA - Genzyme	350,000 sq ft Corporate headquarters	Complete	LEED platinum; 42% energy efficiency savings; 34% water usage savings; 75% recycled building materials	
Chicago Center for Green Technology	Non-profit office	Complete	LEED platinum, roof gardens, solar, recycled grey water	
Little Rock, AK – Heifer International	28 ac; 200 jobs	Complete	Model green parking lot	EPA pilot
Baltimore, MD – Gateway South	11 ac; \$125 million mixed use; 1,600 jobs	Planned	LEED silver projected	EPA site assessment \$975,000 BEDI \$13 million HUD 108
Bethlehem, PA – Lehigh Valley Industrial Park	42,000 sq ft office	Planned	LEED – sunshades, energy efficiency	EPA cleanup HUD 108 BEDI
Denver – Cherokee Denver (Gates Rubber)	Mixed use – 3,000 DU's and 1.75 million sq ft commercial space	To start construction in 2008	Transit-oriented development LEED certification planned	
Atlanta, GA - Atlantic Station	Mixed use – 5,000 DU and 30,000 jobs	More than 50% complete	LEED certification; Going Carless Program	
Cleveland, OH – Flats East Bank	Mixed use – 500 DU and 600,000 sq ft commercial space	Planned	LEED gold projected	EPA Brownfields
Redding, CN Georgetown Land Development	Mixed use – 416 DU, 300,000 sq ft commercial space, theater, B&B	Under construction	Photovoltaics, hydro-electric dam, fuel cell system, transit-oriented development	EPA Brownfields CDBG Green Bonds
New York, NY – Via Verde	202 DU affordable housing	Planned	LEED gold - green roofs, geothermal, photovoltaics	

Successful Landfill Redevelopment Examples (as Reported by FDEP)

Broward	21st St. Manor Dump	Elementary school
Broward	Copans Rd. LF	Commercial/retail operation (Wal-Mart)
Broward	Davie LF	Community park (previous Superfund site)
Broward	Deerfield Beach LF	Office complex
Broward	Hampshire Homes LF	Residential
Broward	Hollywood YT LF	Community soccer fields
Broward	Wingate Rd LF	Golf driving range (current Superfund site)
Palm Beach	Cross State LF	Turnpike toll plaza
Palm Beach	Boynton Beach LF	Proposed communitiy park
Palm Beach	Dyer Rd. LF	Community park w/mountain bike trails
Palm Beach	West Lake Park Rd. LF	Part of community golf course
Palm Beach	Lantana Rd. LF	Radio controlled airplane park
Palm Beach	Lantana Trash Dump	Commercial

Successful Landfill Redevelopment Examples (as Reported by FDEP)

Hillsborough	City of Tampa LF	Restaurant/office complex
Hillsborough	Columbus & McDill Rd LF	Chamber of Commerce Building
Hillsborough	Gandy & Church St. LF	Jai Ali Building
Hillsborough	Handly and Barry Rd. LF	Apartment Complex and Residences
Hillsborough	Water & Dale Mabry Rd LF	Burger King Restaurant
Hillsborough	Mango & Manhattan Rd. LF	Recreation Facility
Hillsborough	Seneca & Dixon Rd. LF	Car Dealership
Hillsborough	Yukon & Tampa Rd. LF	Residential
Hillsborough	30th St and Hillsborough River	Rogers Park Golf Course
Hillsborough	Himes & Gandy Rd. LF	Apartment Complex
Hillsborough	Gunn Highway LF	Apartment Complex
Orange	West 50 LF	Gunite processing facility
Orange	Pine Hills LF	Sports complex (/ballfields)
Orange	Bray's Pit	Yard trash processing facility
Orange	Old dump	Commercial/retail operation
Orange	Old dump	Commercial
Orange	Grinder LF	Sports complex (w/ballfields)
Orange	Old dump	Commercial

Brownfields Going Blue! "New" Federal Priority

U.S. ENVIRONMENTAL PROTECTION AGENCY



RE-Powering America's Land: Renewable Energy on Contaminated Land and Mining Sites

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Basic Information

Renewable Energy Maps and State Incentive Sheets

Renewable Energy Interactive Mapping Tool

Success Stories

Why Develop Renewable Energy on Contaminated Lands?

EPA is encouraging the development of renewable energy by identifying currently and formerly contaminated lands and mining sites that present opportunities for renewable energy development. These pages contain information and resources for developers, industry, and anyone interested in renewable energy development on formerly contaminated land and mining sites.

Renewable Energy On Contaminated Lands Resources:

- [Renewable Energy Maps and Incentive Fact Sheets](#) - Maps showing renewable energy development potential on EPA-tracked sites, as well as incentive sheets describing renewable energy development and contaminated lands redevelopment incentives in each state. The data used to create the renewable energy maps can be found in this [Mapping Data Excel File \(7.9 MB\)](#). Developed in partnership with the [National Renewable Energy Laboratory](#).
- [Renewable Energy Interactive Map \(KMZ, 1.2 MB\)](#) - shows renewable energy maps and relevant site environmental information as a layer in Google Earth. You can also [learn more about how to use the this tool](#).

To use the Google Earth tool:

- First, make sure you have Google Earth loaded onto your computer. You can download [Google Earth](#) EXIT Disclaimer for free online.
- Second, open the [Renewable Energy Interactive Map \(KMZ, 899KB\)](#) to launch the Renewable Energy Maps and associated site information.
- Third, make sure to check the box next to "RE_on_EPA_Tracked_Sites" in Google Earth's left navigation panel. Doing so will add a new layer of dots to the Google Earth map.
- [Why Develop Renewable Energy on Contaminated Lands?](#) - Describes the characteristics of contaminated lands that make them attractive locations for renewable energy projects.
- [EPA OSWER Center for Program Analysis Data Guidelines for "Clean and Renewable Energy Generation Potential on EPA Tracked Sites" Maps \(PDF\)](#) (7pp, 115KB, [About PDF](#)) - Outlines the renewable energy mapping methodology, data considerations, data sources and attributes, and contact information.



Energy-generating windmill along a coastline

Related Links

- [Superfund](#)
- [OSWER Cleanups](#)
- [RCRA Corrective Action](#)
- [OCA](#)

Making the Case for Renewable Energy Redevelopment of Brownfield Sites

- Many sites are large (100s to 1000s of acres)
- Ease of acquisition (one to few owners; "no assemblage required")
- Less likely to be met with opposition to "aesthetics"
- Land use and zoning hurdles are diminished
- Excellent infrastructure: Transmission lines, roadways, rail
- Correlation between some larger Brownfield sites and proximity to underutilized work force
- Inherent potential for community support (although not guaranteed)
- Valid and Viable Market Surrogate for Conventional Real Estate Demand

Strategies for Renewable Energy on Brownfields

EPA Repower America

Source: Evans Paul, Redevelopment Economics

- Renewable energy – land needs. States with Renewable Energy Portfolio requirements – 6,700 MW by 2025
- EPA tracks:
 - 480,000 sites/15 million acres contaminated properties
 - 10,000 abandoned coal mines
- Screening – 5,000 sites and 1.1 million acres potentially suitable for PV

Brownfields Going Blue! New Federal Priority

➤ Brownfield Revolving Loan Fund Grants

- New Emphasis on Renewable Energy as Award Criteria
- April 10, 2009, Federal Register Notice, announcing \$40 million in grants for the first time EPA listed renewable energy as a grant criterion
- In a conference call with reporters, EPA Admin Lisa Jackson said her staff discussed ideas for assessing projects on a scale of energy neutral to energy positive; EPA is looking for a way to "magnify" President Obama's promotion of renewable energy.

Brownfields Going Blue!

New Federal Priority

- Consistent with 2008 Investments
 - \$550,000, 4-year research grant to West Virginia University to help identify mine scarred lands that are suitable for redevelopment into biofuels and other r/e production sites
- EPA Conference Call in December, 2008
 - Sought input from an array of stakeholders on logistical and practical considerations for siting renewable energy generators on contaminated sites
 - Best Practice Manual forthcoming
- Counter Move to Downturn in Real Estate Market

Brownfields Going Blue!

EPA's RE-Powering America's Land Initiative

- Working with U.S. DOE's National Renewable Energy Lab to identify Brownfields, RCRA, Superfund, and mining sites with renewable energy potential
- Cataloging federal and state incentives for utilizing contaminated sites for renewable energy
- Supporting pilot projects that assess potential renewable energy potential
- Estimating greenhouse gas benefits from siting renewable energy projects on contaminated lands
- Ramping up outreach to stakeholders to determine the need for additional site redevelopment and reuse tools, such as liability release provision

Brownfields Going Blue!

EPA's RE-Powering America's Land Initiative

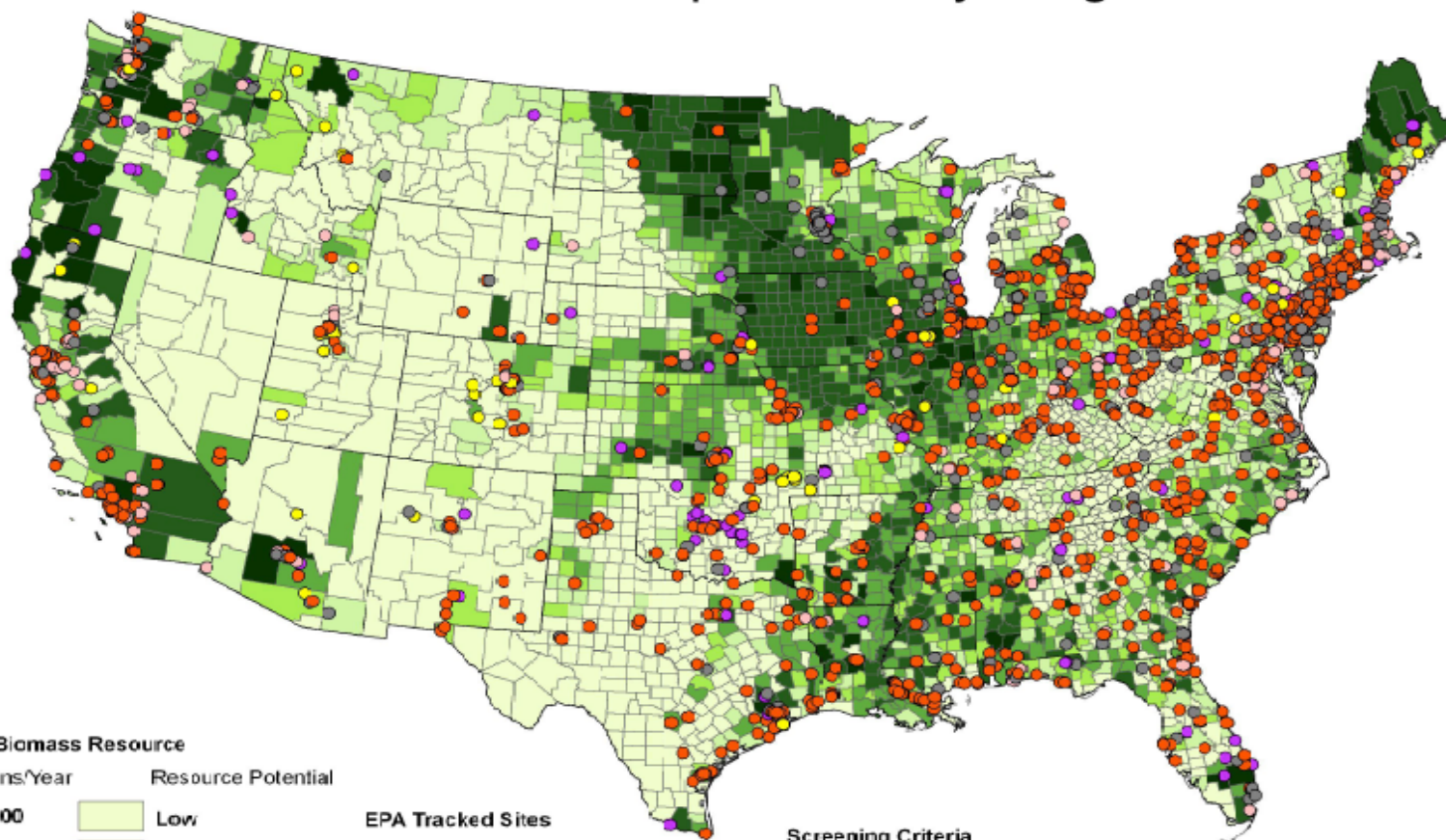
- GIS based mapping of reuse potential with an overlay of regulated sites
 - Superfund
 - RCRA
 - Brownfields
 - Mining

- Metrics included:
 - Community wind energy
 - Utility scale wind energy
 - Utility scale Concentrating Solar Power (CSP)
 - Utility scale Photovoltaic solar energy (PV)
 - Biopower
 - Biorefinery

Out of Thick Air: EPA's "Siting Clean and Renewable Energy on Contaminated Lands and Mining Sites Initiative"

- Maps and incentive sheets provide information about opportunities for renewable energy generation on contaminated lands and mining sites in all 50 states.
- Not prioritized by potential – just a catalog – but data will be updated and qualified over time
- For data guidelines, screening criteria, and methodology: http://www.epa.gov/renewableenergyland/maps/epa_tracked_sites_data_guidelines.pdf

EPA Tracked Sites with Biopower Facility Siting Potential



Metric Tons/Year	Resource Potential
< 50,000	Low
50,000 - 100,000	Marginal
100,000 - 150,000	Good
150,000 - 250,000	Very Good
250,000 - 500,000	Excellent
> 500,000	Outstanding

EPA Tracked Sites

- Abandoned Mine Land
- Brownfield
- RCRA
- Federal Superfund
- Non-Federal Superfund

Screening Criteria

- Cumulative biomass resources of 140,000 metric tons/year or greater within 50 miles (includes residues from: crops; forests; primary and secondary mills; urban wood waste; and methane emissions from manure management, landfills, and domestic wastewater treatment)
- Distance to electric transmission lines of 10 miles or less
- Property size of 50 acres or more
- Distance to graded roads of 3 miles or less
- Distance to rail lines of 8 miles or less



This map was developed by SRA International for the U.S. Environmental Protection Agency (EPA) OSWER Center for Program Analysis. Results are based on site screening criteria adapted from National Renewable Energy Laboratory (NREL) criteria and GIS data provided by NREL and EPA. This map and its associated data are intended to provide a general understanding of the renewable energy potential of EPA tracked sites; additional site specific analysis is required to determine the actual energy generation potential of EPA tracked sites. For further information, please see the accompanying Data Guidelines document, or contact cleanenergy@epa.gov.





State Incentives for Achieving Clean and Renewable Energy Development on Contaminated Lands



The development of clean and renewable energy on formerly used land offers many economic and environmental benefits. Combining clean and renewable energy and contaminated land cleanup incentives can allow investors and communities to create economically viable clean and renewable energy redevelopment projects. This document provides information about incentives in your state that can be leveraged for clean and renewable energy and development of contaminated land.



Incentives for Clean and Renewable Energy

Funding (grants, loans, bonds, etc.)

Florida – Florida Farm to Fuel Grants Program

www.floridafarmtofuel.com/grant.htm

Provides matching grants for demonstration, commercialization, research and development projects relating to bioenergy. As part of this program, a total of \$25 million in matching grants was made available for FY2007-2008. Individual grant amounts vary.

Florida – Renewable Energy Technologies Grants Program

www.dep.state.fl.us/energy/energyact/grants.htm

Provides matching grants for demonstration, commercialization, research and development projects relating to renewable energy technologies including: solar water heat, solar space heat, solar thermal electric, solar thermal process heat, photovoltaic (PV), wind, biomass, hydroelectric, geothermal electric, geothermal heat pumps, CHP/cogeneration, hydrogen, solar pool heating, tidal energy, wave energy, and ocean thermal. As part of this program, \$12.5 million in matching grants was made available for FY 2007-08. Individual grant amounts vary.

Tax Incentives (abatements, deductions, credits, etc.)

Renewable Energy Equipment Sales Tax Exemption

www.dep.state.fl.us/energy/energyact/incentives.htm

Offers a sales tax exemption on the sale or use of the following until June 30, 2010: solar water heat, solar space heat, PV, renewable fuel vehicles, fuel cells, solar pool heating, refueling stations, ethanol, and biodiesel.

Florida – Renewable Energy Production Tax Credit

www.dep.state.fl.us/energy/energyact/incentives.htm

Offers a renewable energy production tax credit equal to \$0.01/kWh of electricity produced by solar thermal electric, PV, wind, biomass, hydroelectric, geothermal electric, CHP/cogeneration, hydrogen, tidal energy, wave energy, and ocean thermal, sold by the taxpayer to an unrelated party during a given tax year. The total amount of tax credits that may be granted for all taxpayers under this program is \$5 million per state fiscal year. Tax credit expires on June 30, 2010. Note: a taxpayer cannot claim both this production tax credit and the Renewable Energy Technologies Investment Tax Credit.

Florida – Renewable Energy Technologies Investment Tax Credit

www.dep.state.fl.us/energy/energyact/incentives.htm

Offers a corporate tax credit to promote investment in (1) hydrogen-powered vehicles and hydrogen vehicle fueling stations; (2) commercial stationary hydrogen fuel cells; and (3) production, storage, and distribution of biodiesel and ethanol. The tax credit amount for each technology is 75% of all capital costs, operation and maintenance costs, and research and

development costs—up to \$3 million for hydrogen-powered vehicles and hydrogen vehicle fueling stations; up to \$1.5 million for commercial stationary hydrogen fuel cells, and up to \$6.5 million for production, storage, and distribution of biodiesel and ethanol. Tax credit expires on June 30, 2010.

Net Metering

Florida Net Metering

www.psc.state.fl.us

Florida's investor-owned utilities offer net metering and interconnection for renewable-energy systems up to 2 MW in capacity. Qualified renewable-energy systems include solar thermal electric, solar thermal process heat, PV, wind, biomass, hydroelectric, geothermal electric, CHP/cogeneration, hydrogen, small hydroelectric, tidal energy, wave energy, and ocean thermal.

Quick Facts

Public Benefit Fund (PBF)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Renewable Portfolio Standard	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Net Metering	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Interconnection Standards	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Electric Power Industry Generation by Primary Energy Source (EIA, 2006)

Petroleum-Fired	10.3%	Nuclear	14.0%
Natural Gas-Fired	42.9%	Hydroelectric	0.1%
Coal-Fired	29.2%	Other Renewables	2.0%
		Other	1.5%

Points of Contact

Florida - Florida Farm to Fuel Grants Program
Tom Steckler, FarmtoFuel@doacs.state.fl.us, (850) 488-0646

Florida - Renewable Energy Technologies Grants Program
Jill Stoyshich, jill.stoyshich@dep.state.fl.us, (850) 245-8002

Florida Renewable Energy Tax Incentive Programs
Jill Stoyshich, jill.stoyshich@dep.state.fl.us, (850) 245-8002



Incentives for Development of Contaminated Land



Funding (grants, loans, bonds, etc.)

Brownfields Area Loan Guarantee Program

www.dep.state.fl.us/waste/categories/brownfields/pages/economic_incentives.htm#State

Provides state loan guarantees for primary lenders, up to 50% on all brownfield sites and up to 75% if the property is redeveloped as affordable housing.

Tax Incentives (abatements, credits, deductions, etc.)

Brownfields Redevelopment Bonus Refund

www.dep.state.fl.us/waste/quick_topics/publications/wc/brownfields/Incentives/BrownfieldRedevelopmentBonus.pdf

Provides up to \$2,500 in a tax credit "brownfields bonus" per job created in a designated brownfield area for certain types of businesses.

Sales Tax Credit on Building Materials

dor.myflorida.com/dor/tips/tip00a01-23.html

Provides a sales tax credit on building materials used for the construction of certain redevelopment projects located in brownfield areas.

Voluntary Clean Up Tax Credits (VCTC) (Corporate)

www.dep.state.fl.us/waste/categories/vctc/default.htm

Provides a 50% tax credit on annual voluntary cleanup costs, up to \$500,000 per year. These tax credits may be used to satisfy Florida corporate income tax liability. An additional 25% tax credit is available if the site receives a Site Rehabilitation Completion Order (i.e., no further action). An additional 25% tax credit is available if the property is redeveloped for affordable housing. Tax credits are good for five years and may be transferred one time during that five-year period. After transfer the tax credits are good for an additional five years.

Technical Assistance and Other Incentives

Enterprise Zone Program

www.floridaenterprisezone.com/PageView.asp?PageType=R&edit_id=1

Provides a variety of incentives in cooperation with local governments to encourage economic growth and investment in zones: job creation tax credits, expedited permitting, enterprise zone property tax credits, a building material sales tax refund, a business equipment sales tax refund, and an electrical energy sales tax exemption.

Limitations on Liability

Florida Brownfields Redevelopment Program (BRP)

www.dep.state.fl.us/waste/categories/brownfields/pages/economic_incentives.htm

Liability protection from state and third party claims is provided for projects that have an executed Brownfield Site Remediation Agreement (BSRA) with the Florida Department of Environmental Protection. These liability protections are effective while the BSRA is implemented and continue after completion of the BSRA, if the site achieves No Further Action (NFA) status (i.e., a Site Rehabilitation Completion Order).

Quick Facts

Limitations on Liability	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Number of State-Tracked Contaminated Properties: Includes sites with Executed BSRAs		114
Number of EPA CERCLIS Sites: Sites identified for potential investigation under the federal Superfund Program		624
Number of EPA Brownfields Properties: Properties being funded or addressed under the EPA Brownfields Program		305

There may be some overlap among the categories listed and sites listed may not represent all potentially contaminated sites in Florida.

Points of Contact

Florida Department of Environmental Protection

www.dep.state.fl.us

Brownfields Area Loan Guarantee Program, Brownfields Redevelopment Bonus Refund

Mary Helen Blakeslee, maryhelen.blakeslee@myflorida.com, (850) 487-2568

Florida Brownfields Redevelopment Program (BRP)

Kim Walker, kim.walker@dep.state.fl.us, (850) 245-8934

Voluntary Clean Up Tax Credits (VCTC)

Beth Walker, beth.walker@dep.state.fl.us, (850) 245-8933

Florida Department of Revenue

<http://dor.myflorida.com/dor/>

Sales Tax Credit on Building Materials

Rod Felix, (850) 487-2568

Enterprise Florida

www.eflorida.com

Enterprise Zone Program

Joseph Bell, jbelle@eflorida.com, (407) 956-5622

Draft RE-Powering America's Land Management Plan, November 2010

RE-Powering America's Land Initiative Management Plan

EPA launched RE-Powering America's Land: Siting Renewable Energy on Potentially Contaminated Land and Mine Sites to encourage the siting of renewable energy facilities on thousands of currently and formerly contaminated properties across the nation. This management plan builds on the progress that's been made to date under this initiative, and lays out key areas that EPA will focus on over the next two years.

Goal 1 Provide Incentives and Technical Assistance for Siting Renewable Energy on Contaminated Land

Objective 1 Provide Effective Technical Assistance and Identify Incentives

Action 1 – Develop a "SWAT" Team to Deal with Issues as Soon as They Arise

Siting renewable energy on contaminated lands can be complicated; developers and communities often come to EPA with issues and concerns related to environmental laws and regulations at the federal, state, and local level that they would not face in developing green spaces. To best promote EPA's RE-Powering America's Land Initiative, EPA needs to be able to respond to all issues and concerns quickly and accurately. Because it would not be possible to educate EPA staff on all possible questions and issues raised by developers, land owners, and others, a "SWAT" team of experts from across the Agency (e.g., OECA, Superfund, Brownfields, RCRA, etc.) can be on call when needed to tap into their expertise. The SWAT Team could go beyond EPA to include other federal agency experts (e.g., NREL, DOE, etc.). OSWER Center for Program Analysis (CPA) will take the lead for this action item.

CPA, working with the EPA's RE-Powering America's Land Team will:

- Solicit volunteers for the SWAT Team from the RE-Powering team and EPA offices
- Establish the Team, provide training, and determine how it will operate.
- Issue a memo from OSWER AA notifying the Agency that the team exists and is there as a resource to help projects reach completion.
- Use the expertise of the SWAT Team to educate EPA staff with webinars and other materials, and over time, develop expertise across EPA program offices and Regions
- Establish a main point of contact in each Region to include as information on the Google Earth tool (member of RE-Powering America's Land Team).

Timing: Establish team August 2010.

Action 2 – Develop Principles for Siting Renewable Energy on Contaminated Land, both While Cleanup is Ongoing and After Cleanup Is Complete

Renewable energy, while viewed similar to any other redevelopment on a contaminated site, has practical differences from other types of reuse. Unlike many traditional reuses for contaminated sites, renewable energy can be sited on some sites even with cleanup work ongoing. While some at EPA have been encouraging this practice, there is no guidance for

Interest at the State Level

- New York State Senator Antoine Thompson (D-Buffalo), convened a summit on October 30, 2007, which he called "From Brownfields to Brightfields: Taking Control of Our Energy Future While Restoring the Land"
- "Potential Application of Renewable Energy on Brownfield Sites: A Case Study of Michigan," Michigan State University Land Policy Institute, January 2009
 - Advantages cited:
 - More ready market for end product, as brownfields are generally close to areas of high energy consumption
 - Proximity to grid transmission
 - Existing transportation systems
 - Available land with few competing uses
 - Site improvements over existing use
 - Estimated financial impact: \$15 billion and 17,500 construction and full time jobs

Success Stories – Siting Renewable Energy on Contaminated Land Fort Carson, Colorado

Former Landfill Becomes Home to the Army's Largest Solar Array



EPA is encouraging the development of renewable energy by identifying current and former contaminated lands and mining sites that present opportunities for renewable energy development. This site demonstrates the benefits of siting renewable energy on contaminated lands.

Site Description

Fort Carson is a U.S. Army installation located immediately south of Colorado Springs in El Paso County, Colorado. In addition to training facilities comprising 137,000 acres, the fort is home to 11,000 people.

Property History

The site, a 15-acre former landfill, operational from 1965 to 1973, contains mostly construction debris and is regulated as a solid waste management unit as part of Fort Carson's permit with the Colorado Department of Public Health and Environment. Without costly excavation, capping or extensive cleanup, reuse options for the site were limited.

Renewable Energy Development

This project reflects Fort Carson's initiative to power all its facilities with renewable energy by 2027. Because of its restricted use, the landfill site was an ideal candidate for the solar array. In 2007, the site was prepared for the solar facility by installing a four-foot-thick earthen envirotranspiration cover, and revegetated with drought-resistant prairie grass.

The two-megawatt, ground-mounted photovoltaic (PV) solar facility covers 12 acres and is the largest solar array built at a US Army facility. The photovoltaic array consists of flat-plate, thin-film solar technology provided by First Solar, an Arizona company. The solar modules will produce energy efficiently for 40 years. The array will generate 3,200 megawatt-hours of power annually, enough to supply 2.3 percent of Fort Carson's energy consumption, the equivalent of 540 homes.

Seven public and private entities worked together to bring the idea to life. Fort Carson leased the land for the system to developers. The Western Area Power Administration (DOE) wrote two contracts under its power marketing authority to allow Fort Carson to purchase power from the array as supplemental energy at a low fixed cost for 20 years. Project partners 3 Phases Energy Services, MS Greenrock and SunTechnics developed, financed and installed the PV array.

Colorado Springs Utilities, the local area power provider, monitors and maintains the solar PV system. Project developer 3 Phases Energy will sell Renewable Energy Credits (RECs) for the solar energy produced at the site to Denver's utility company, Xcel Energy, under the investor-owned utility's Solar Rewards program. Xcel will then apply the RECs in compliance with Colorado's renewable energy portfolio standard (RPS). The Colorado RPS requires utilities to obtain 10 percent of their electricity from renewable sources by 2015, and 20 percent by 2020.



QUICK FACTS:

Location:	EPA Region 8, El Paso County, CO
Property Size:	15 Acres
Site Ownership:	United States Army
Former Use:	Decommissioned Landfill
Cleanup Type:	State Solid Waste Management Unit (RCRA)
Contaminants:	Construction waste, groundwater contamination
Type of RE:	Solar PV (utility scale)
RE Capacity:	2 MW
Project Cost:	\$13 million
Key Partners:	US Army; Western Area Power Authority (DOE); 3 Phases Energy Services, LLC; Sun Technics, Inc.; MS Greenrock, LLC; Xcel Energy, Colorado Springs Utilities
Current Status:	Complete and operational as of 2008

PROJECT HIGHLIGHTS:

- 2 MW, 12-acre facility on former landfill is the largest solar array built at a U.S. Army facility.
- Through a power purchase agreement with Fort Carson, Colorado Springs Utilities builds and maintains the solar PV facility and provides the fort with lower-cost electricity in return for leasing the site.
- Solar array will generate enough electricity annually to power 540 homes, or 2.3 percent of the fort's energy consumption.
- Project will save Fort Carson \$500,000 in energy costs over the life of its 20-year contract with the utility.



CONTACT: Fort Carson Sustainability Planner, Fort Carson Environmental Compliance Division, (719) 526-9777

To learn more about siting renewable energy on contaminated land, visit: www.epa.gov/renewableenergyland

Additional Case Studies Solar on Brownfields

- West Pullman Industrial Redevelopment Area
Brownfield Site, Chicago, Illinois
 - 39 acre site
 - \$60 million project, contingent on DOE federal loan guarantee under ARRA
 - 32,800 solar photovoltaic panels
 - 10 MW
 - Enough power to sustain 1,200 to 1,500 homes and displace 31.2 million pounds of greenhouse gas emissions annually

Additional Case Studies

Solar on Brownfields

- Holmes Road Landfill Site, Houston, Texas
 - 300 acre site
 - Closed in 1970
 - Owned by the City of Houston
 - Located 10 minutes from downtown
 - Expected to generate 1% of City's electrical needs annually for the next 30 years and save over \$8 million in the first 20 years
 - \$200,000 EPA Grant funded Technical Report – "Solar Power Analysis and Design Specifications" Report can be found at: http://www.epa.gov/brownfields/sustain_plts/factsheets/houston_solar.pdf

Additional Case Studies Wind on Brownfields

- Steel Winds Site, Lackawanna, New York
 - 30 acre Bethlehem Steel
 - Idle for 30 years
 - NPL Site
 - One of the first wind farms in the U.S.
 - 8 wind turbines on old slag pile
 - 50 MW

*Slide Source: U.S. EPA OSWER Center for Program Analysis,
Pam Swingle, April 22, 2009*

Additional Case Studies

Waste-to-Energy on Brownfields

➤ Waterbury, Connecticut

- Planned conversion of Brownfield highly polluted former factory site into country's largest food-waste-to-energy plant
- Facility will accept food waste from grocery stores, food product manufactures, cafeterias, hospitals, schools, and prisons and turn it into food
- Will accept up to 625 tons of food a day, generate 12 megawatts of electricity, and sell to Connecticut Light & Power
- Anticipated to produce electricity for 10,000 homes

Additional Case Studies Various Forms of Renewable Energy on Brownfields

- New Mexico is building inventory of developable b/f sites
 - Solar at copper mine in Silver City
 - Wind and solar at jet fuel testing site in Las Cruces
 - Biowaste at dairy site in Pecos Valley
 - Biogas at former wastewater treatment plant

Slide Source: New Mexico Energy, Minerals and Natural Resources Department, Brian Johnson, April 22, 2009

III. Design Aesthetic as New Market Driver for Public and Private Sector Projects

- Sustainability Throughout Redevelopment Cycle
 - Demolition
 - Renovation
 - Remediation
 - Construction

- Planning and Design Elements
 - Stormwater
 - Renewable Energy
 - Co-locating Renewable Energy & Conventional End-Uses

A Vision for Sustainable Redevelopment: The Big Picture



Deconstruction,
Demolition, and
Removal

Cleanup,
Remediation, and
Waste Management

Design and
Construction for
Reuse

Sustainable Use
and Long Term
Stewardship

- Reuse/recycle deconstruction and demolition materials
- Reuse materials on site whenever possible
- Consider future site use and reuse existing infrastructure
- Preserve/Reuse Historic Buildings
- Use clean diesel and low sulfur fuels in equipment and noise controls for power generation
- Retain native vegetation and soils, wherever possible
- Protect water resources from runoff and contamination

- Power machinery and equipment using clean fuels
- Use renewable energy sources, such as solar, wind, and methane to power remediation activities
- Improve energy efficiency of chosen remediation strategies
- Select remediation approaches, such as phytoremediation, that reduce resource use and impact on air, water, adjacent lands, and public health
- Employ remediation practices that can restore soil health and ecosystems and, in some cases, sequester carbon through soil amendments and vegetation

- Use Energy Star, LEED, and GreenScapes principles in both new and existing buildings
- Reduce environmental impact by reusing existing structures and recycling industrial materials
- Incorporate natural systems to manage stormwater, like green roofs, landscaped swales, and wetlands
- Incorporate Smart Growth principles that promote more balanced land uses, walkable neighborhoods, and open space
- Create ecological enhancements to promote biodiversity and provide wildlife habitat and recreation

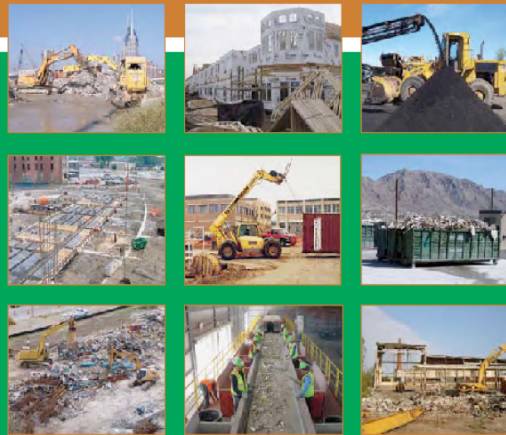
- Reduce use of toxic materials in manufacturing, maintenance, and use of buildings and land
- Minimize waste generation, manage waste properly, and recycle materials used/generated
- Maintain engineering and institutional controls on site where waste is left in place
- Reduce water use by incorporating water efficient systems and use native vegetation to limit irrigation
- Maximize energy efficiency and increase use of renewable energy
- Take appropriate steps to prevent (recontamination)

A Vision for Sustainable Redevelopment: Demolition



Recover Your Resources

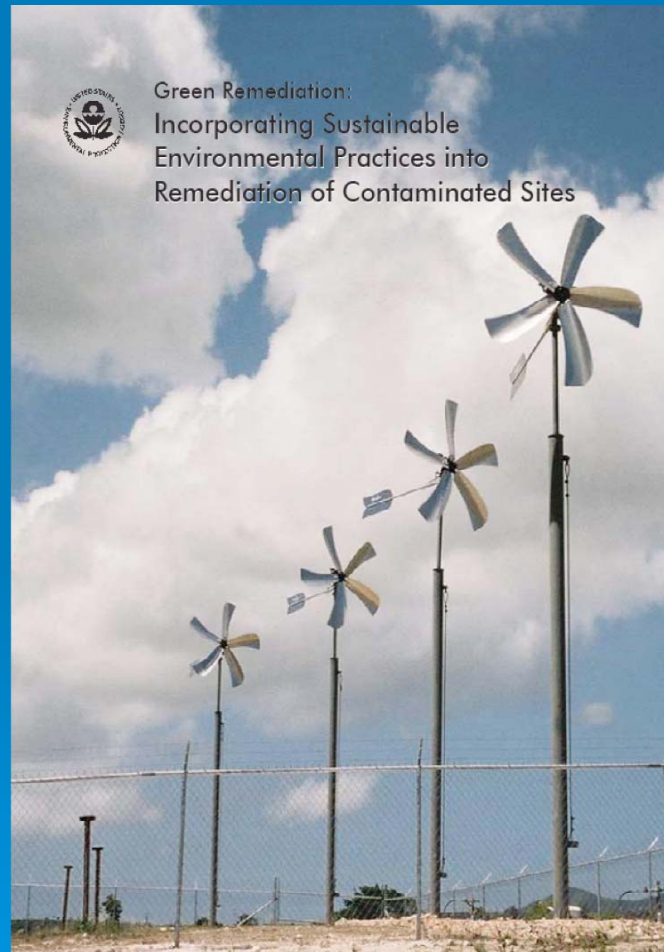
*Reduce, Reuse, and Recycle
Construction and Demolition Materials
at Land Revitalization Projects*



What's in Your Dumpster?



A Vision for Sustainable Redevelopment: Remediation





Green Remediation

- Green Remediation is the practice of considering all environmental effects of remedy implementation and incorporating options to maximize net environmental benefit of cleanup actions
- Green remediation seeks to minimize the environmental and energy footprints of all actions taken during a project life.
- Best Management Practices of green remediation emphasize a "whole-site" approach that closely evaluates core elements of a cleanup project, including the following:
 - Energy requirements
 - Air emissions
 - Water requirements and impacts of water resources
 - Impacts on land and ecosystems
 - Material consumption and waste generation
 - Impacts on long-term stewardship of a site



Best Management Practices

➤ Energy Requirements of the Treatment System

- Optimized passive-energy technologies (with little or no demand for external utility power for polishing steps that enable all remediation objectives to be met)
- energy efficient equipment and maintain equipment at peak performance to maximize efficiency
- Use of renewable energy to replace or offset electricity requirements otherwise met by the utility

➤ Air Emissions

- Minimize use of heavy equipment requiring high volumes of fuel
- Use cleaner fuels and retrofit diesel engines to operate heavy equipment, when possible
- Reduce atmospheric release of toxic or priority pollutants
- Minimize dust export of contamination

➤ Water Requirements and Impacts on Water Resources

- Minimize fresh water consumption and maximize water reuse during daily operations and treatment processes
- Reclaim treated water for beneficial use such as irrigation or as part of optimized remedy
- Use native vegetation requiring little or no irrigation
- Prevent impacts such as nutrient loading on water quality in nearby water bodies

A Vision for Sustainable Redevelopment: Design

Design Principles

for Stormwater Management on Compacted, Contaminated Soils in Dense Urban Areas



EPA's Brownfields Program is designed to empower states, communities, and other stakeholders in economic redevelopment to work together in a timely manner to prevent, assess, safely clean up, and sustainably reuse brownfields. A brownfield is a property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. EPA's Brownfields Program provides financial and technical assistance for brownfield revitalization, including grants for environmental assessment, cleanup, and job training.

What is Green Infrastructure?

Most development and redevelopment practices cover large areas of the ground with impervious surfaces such as roads, driveways, sidewalks, and new buildings themselves, which then prevent rainwater from soaking into the ground. These hard surfaces increase the speed and amount of stormwater that runs into nearby waterways, carrying pollutants and sediment each time it rains.

Green infrastructure seeks to reduce or divert stormwater from the sewer system and direct it to areas where it can be infiltrated, reused or evapotranspirated. Soil and vegetation are used instead of, or in conjunction with, traditional drains, gutters, pipes and centralized treatment areas. In many new and redevelopment projects, green infrastructure is implemented to manage and mitigate the polluted runoff created by precipitation that falls on rooftops, streets, sidewalks, parking lots and other impervious surfaces.

How can Green Infrastructure be Applied to Brownfield Sites?

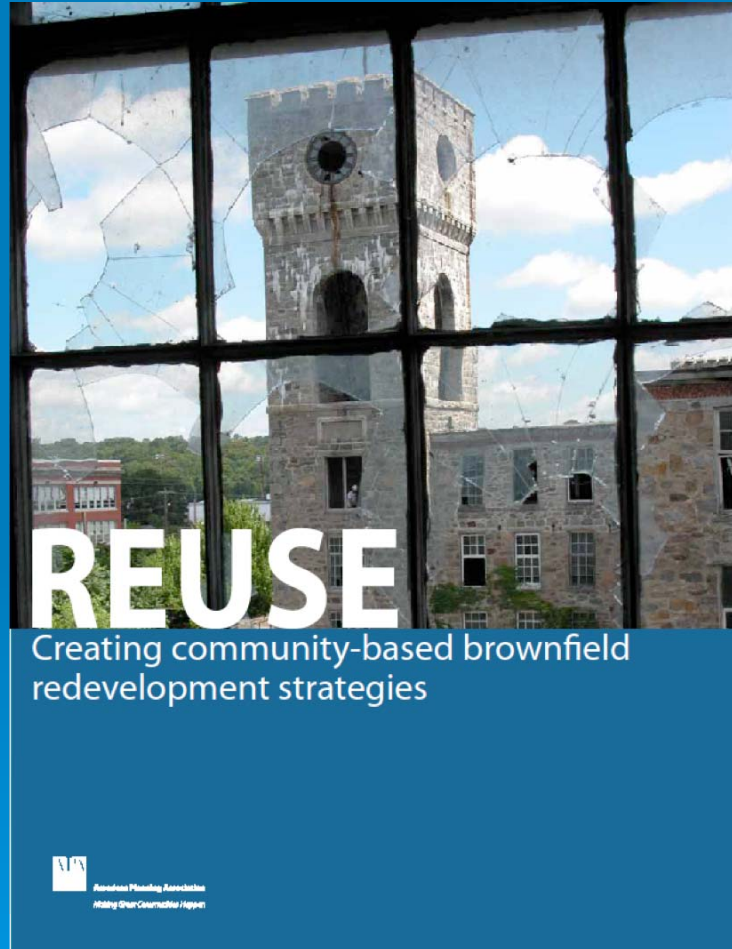
Preparing brownfields for redevelopment often requires capping of contaminated soils, creating even larger impervious surfaces. The challenge for managing stormwater on brownfield sites is allowing this capping while mitigating the impervious surface conditions that can negatively impact local waterways.

Unlike many conventional developments, impervious footprints on brownfields cannot always be minimized through site designs that incorporate more porous surfaces to allow for infiltration. Direct infiltration on a brownfield site may introduce additional pollutant loads to groundwater and nearby surface waters. However, green infrastructure practices exist that can retain, treat and then release stormwater without it ever coming in contact with contaminated soils.



A bioretention area in Wilmington, Delaware, designed to absorb and retain stormwater runoff.

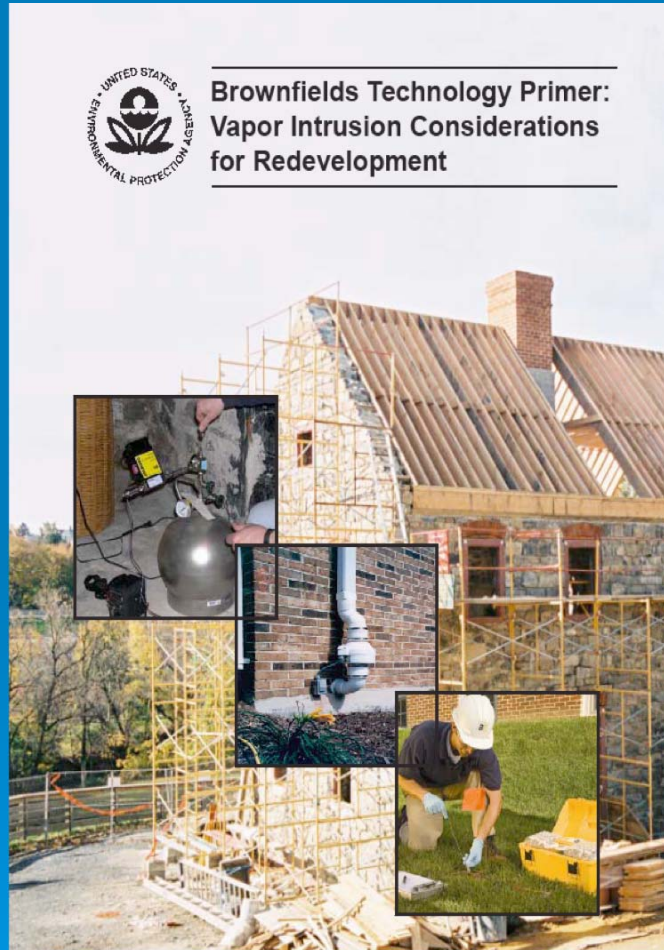
A Vision for Sustainable Redevelopment: Design



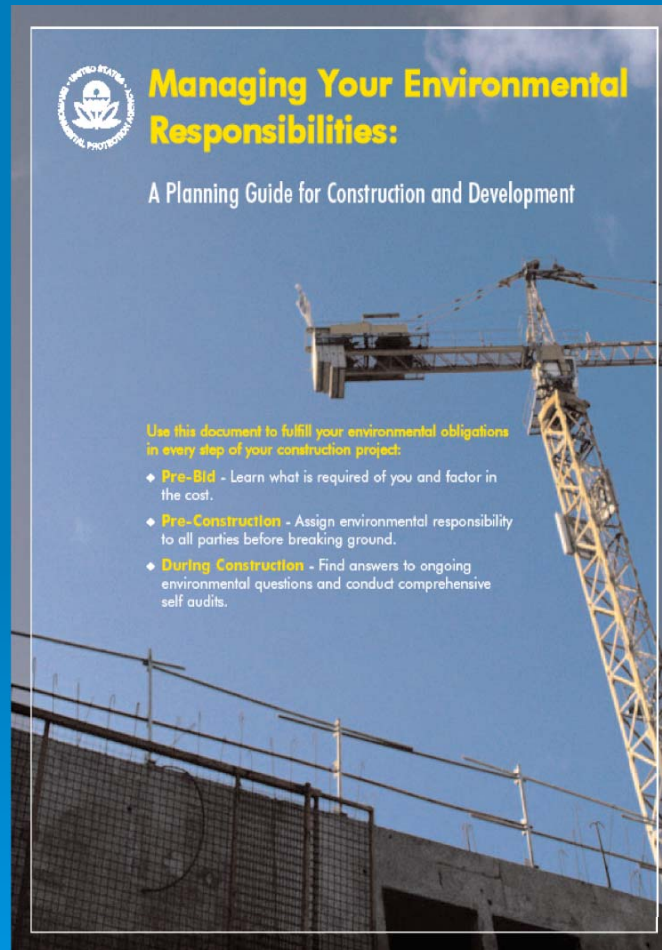
A Vision for Sustainable Redevelopment: Design & Construction



**Brownfields Technology Primer:
Vapor Intrusion Considerations
for Redevelopment**



A Vision for Sustainable Redevelopment: Construction



IV. The New Market Drivers

- Local Governments & Emergence of the Brown-to-Green-to-Blue RFP
- Ascendancy & Primacy of Grassroots Organizations: Reactive to Proactive

Hunt's Point Food Distribution Center Alternative Retail Fueling Facility RFP

- New York City Economic Development Corporation sought proposals to develop retail alternative fueling facility & associated retail services on **2.93 acres**
- Located within Hunts Point Food Distribution Center ("FDC"), 329-acre City-owned industrial park comprising wholesale food distribution businesses and other food related enterprises (City's primary food distribution facility)
- **Brownfield Site**
 - Site partially located on a portion of former coal gasification plant
 - NYDEC will fund and implement initial cleanup in advance of construction of proposed project
 - Selected Developer will be required to comply with and implement remaining components of cleanup during site development, which could include the following
 - Engineering Control Cap & Vapor Barrier
 - Soil Management Plan; Health & Safety Plan
 - Restrictive Covenant
 - Assumption of certain cleanup costs on going forward basis
- Green "guidelines" for design and construction

Hunt's Point Food Distribution Center Alternative Retail Fueling Facility RFP

- Stated goals:
 - "Solicit proposals for the development of a retail fueling facility that supports and encourages the use of sustainable alternative fuels by trucks traveling within Hunts Point in order to reduce the negative impacts of diesel emissions on public health and reduce dependency on fossil fuels."
 - "Foster the growth of the sustainable alternative fuels industry in the City."
- Responses were required to address several important goals for the Site
 - "The provision of a mix of complementary uses, including a retail alternative fueling facility, related retail goods and services, and additional development components that will help to distinguish the development and the community as a regional and national model for sustainable development"
 - High-quality design and construction that will continue to raise the standard for private investment in Hunts Point"

City of East Providence, RI Forbes Street Landfill Redevelopment RFP

- Issued July 20, 2010 and closed five weeks later
- 229 acre site, 70 acre informally closed landfill



Figure 1

Site Location Plan

Dec 2000



Forbes Street Landfill Feasibility Study
East Providence, Rhode Island

Vanasse Hangen Brustlin, Inc.



City of East Providence, RI Forbes Street Landfill Redevelopment RFP

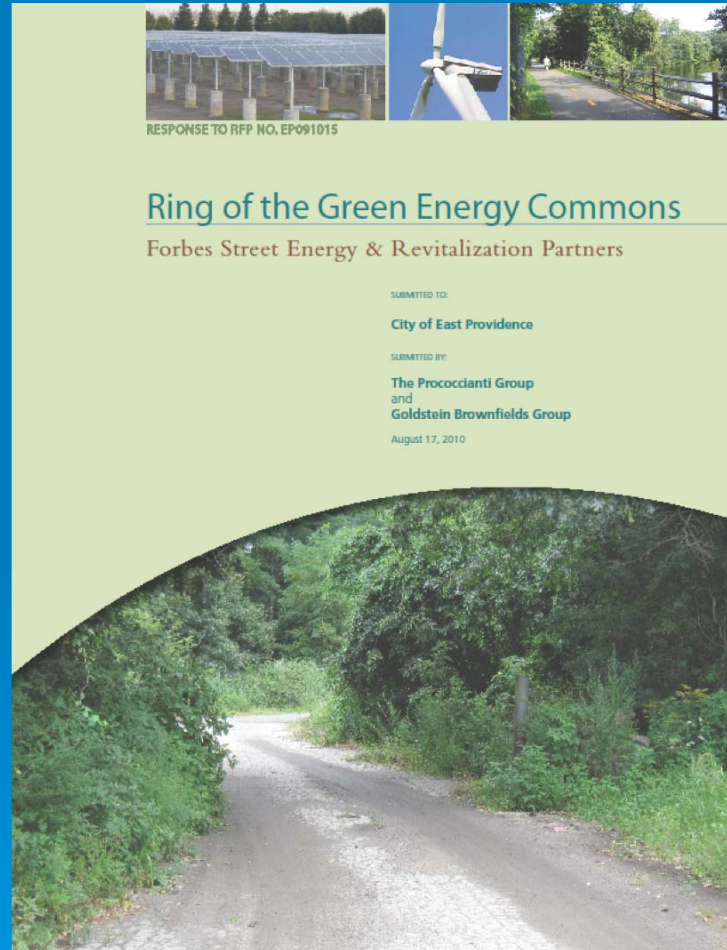
- Issued July 20, 2010 and closed five weeks later
- 229 acre site, 70 acre informally closed landfill
- No formal assessment, no cap, no regulatory closure
- RFP sought "highly qualified development partners with experience in alternative energy development/financing/construction/O&M, brownfield remediation, and working with public sector partners."
- State making available to selected developer up to \$1.5 million in cash reimbursements for "necessary feasibility analyses for the re-use of the property for renewable energy as well as providing the City of East Providence with equity capital for the project"
- RFP required sophisticated use of multiple financial incentives, including Federal Investment Tax Credits, Renewable Energy Certificates, and "other State and Federal energy and redevelopment financing tools"
- City committed to sign a a long term Power Purchase Agreement for approximately 12 MW annually

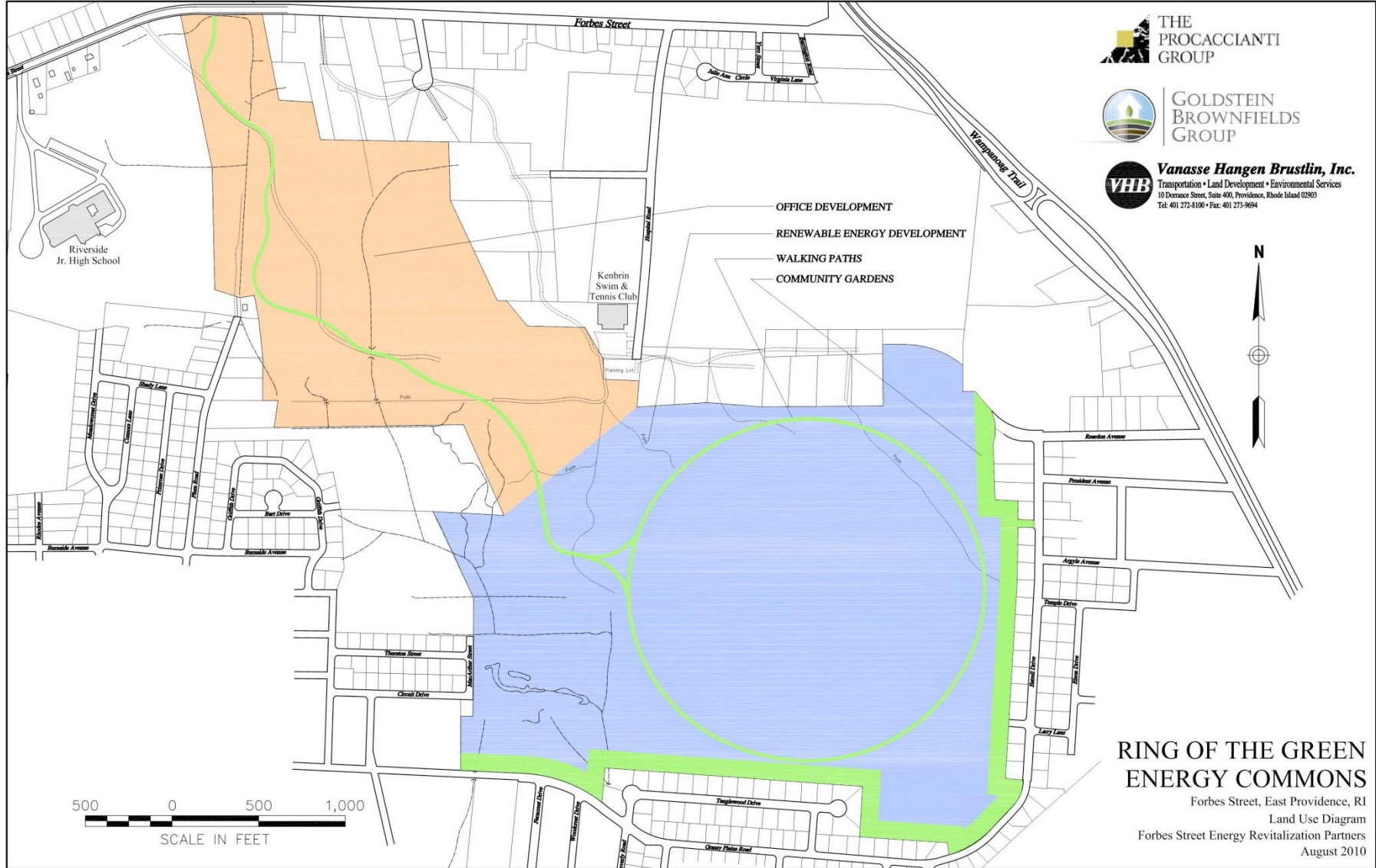
City of East Providence, RI Forbes Street Landfill Redevelopment RFP

➤ Project Objectives

- Redevelopment of an underutilized City property for uses which will enhance the City's revenues through alternative energy revenues and increased tax base from some commercial development and Pilot payments
- Reposition a City brownfield property for beneficial reuse through landfill closure that meets all State and Federal requirements;
- Minimize the City's financial exposure for redevelopment through partnership with a private entity while at the same time participating in the creation of a valuable power generation facility which the City may own in the future.
- Complete a project which will serve as a model of sustainable development and provide a public benefit.

Response to East Providence Landfill RFP: "Ring of the Green Energy Commons"





 **THE PROCACCIANTI GROUP**

 **GOLDSTEIN BROWNFIELDS GROUP**

 **Vanasse Hangen Brustlin, Inc.**
Transportation • Land Development • Environmental Services
10 Donance Street, Suite 400, Providence, Rhode Island 02903
Tel: 401 273-8100 • Fax: 401 273-9694

RING OF THE GREEN ENERGY COMMONS

Forbes Street, East Providence, RI
Land Use Diagram
Forbes Street Energy Revitalization Partners
August 2010

City of Hollywood, FL Pending RFP: Municipal Landfill, Incinerator, Truck Depot & Nursery,



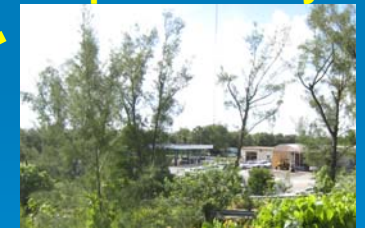
Landfill



Nursery & PW Compound



**CNG/Gas Fueling
& Repair Facility**



Trash Transfer Station



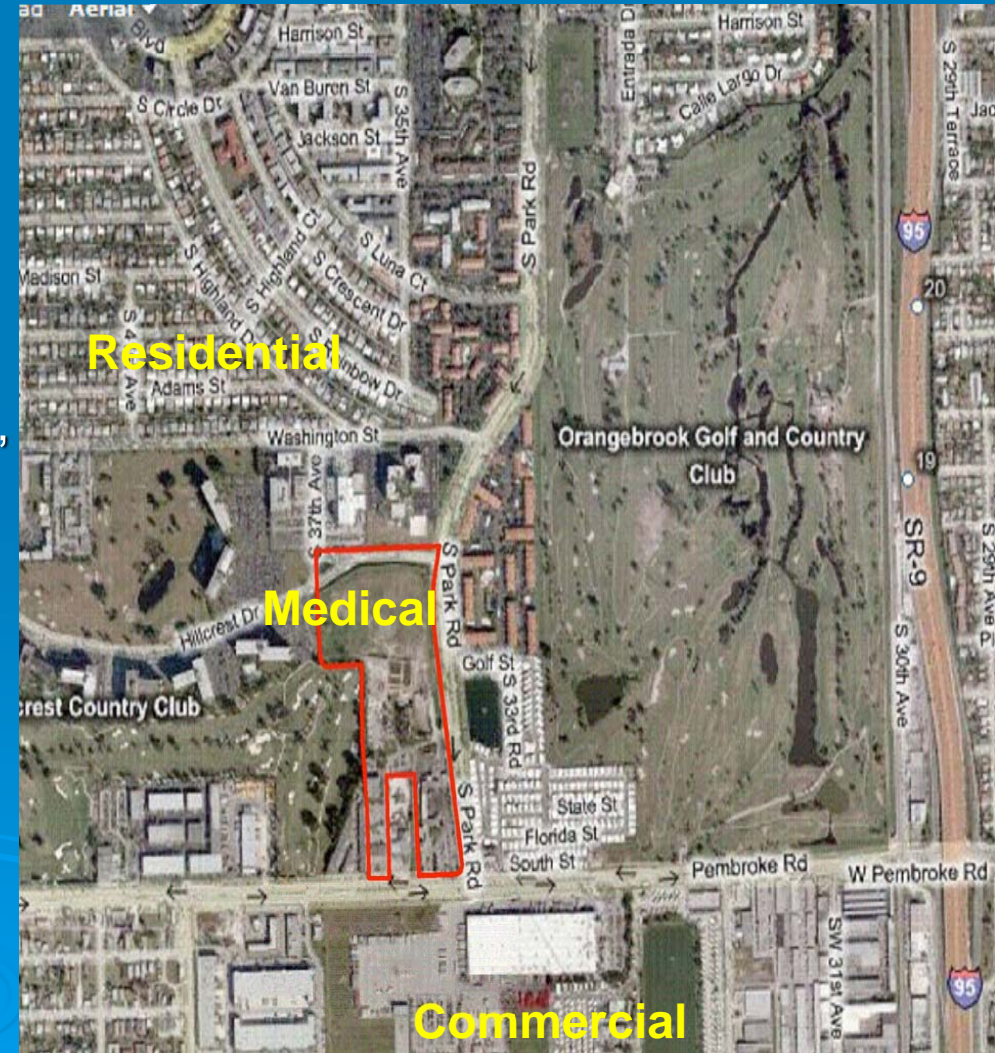
Fmr. Incinerator



Pubic Works Building

Redevelopment Attributes

- Strategic Location
- Proximity to Transportation Infrastructure
- Critical Mass of Homeowners/Tenants
- Good Mix of Surrounding Uses
- Size Allows for Consideration of Complementary Mix of Uses
- Opportune Time for Redevelopment
 - Environmental Grants, Tax Credits, Tax Rebates, Loan Guarantees
 - Renewable Energy Grants
 - New Market Tax Credits
- Meets Additional Strategic Criteria for Brownfields Developers
 - Owned by Local Government
 - Planning and Permitting Assistance Available
 - Pricing (Brownfields Discount)



Ascendancy and Primacy of Grassroots Organizations

Environmental Justice and the Green Economy

A Vision Statement and Case Studies for Just and Sustainable Solutions



Environmental Justice Trends and Issues

- What Measure of Equity is Due?
 - Informational: Outreach and Inreach
 - Health: Past & Future
 - Financial: Living Equity vs. Wealth Equity
 - Vision Equity: Planning & Design
- Current EJ Mechanics in Florida Brownfields Redevelopment
 - Brownfields Site Rehabilitation Agreement ("BSRA")
 - Florida Brownfields Association
 - Self Help
 - Developer Good Will
- Evolving EJ Choreography
 - Historically Reactive and Ineffective
 - Regulator Reform
 - Ascendancy of EJ & Grassroots Advocates (mainly elsewhere)
- Next EJ Battleground (Launching Pad)
 - Renewable Energy
- EJ Foot Soliders
 - Diversity in the Environmental Profession

Environmental Redevelopment Model

- Financial Viability of End Use
 - End Use Robustness
 - Redevelopment Plan Blessed by Community
 - Diversity of Partners
 - Design Driven by Endlessness
 - Profits Driving Foundation
 - Incubator for Social Equity
- 