

An Introduction to MassDEP's Clean Energy Results Program

Superfund Advisory Committee Meeting
Thursday, May 24, 2012

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Coordinator



AGENDA

- Background/Administration Goals
- Clean Energy Results Program (CERP)
- BWSC CERP Goals
 1. Developing 25 MW's of Photovoltaic (PV) Renewable Energy Projects
 2. Promoting Green Remediation

Jobs & Opportunity



- October 2011 CEC Report
- 64,310 people are directly involved in work related to the state's clean energy sector
- Represents 1.5 % of all jobs
- 4,909 clean energy companies in the state
- Companies saw 6.7% increase in jobs from 7/10 to 7/11.
- Expected to grow to 15.2% from 7/11 to 7/12



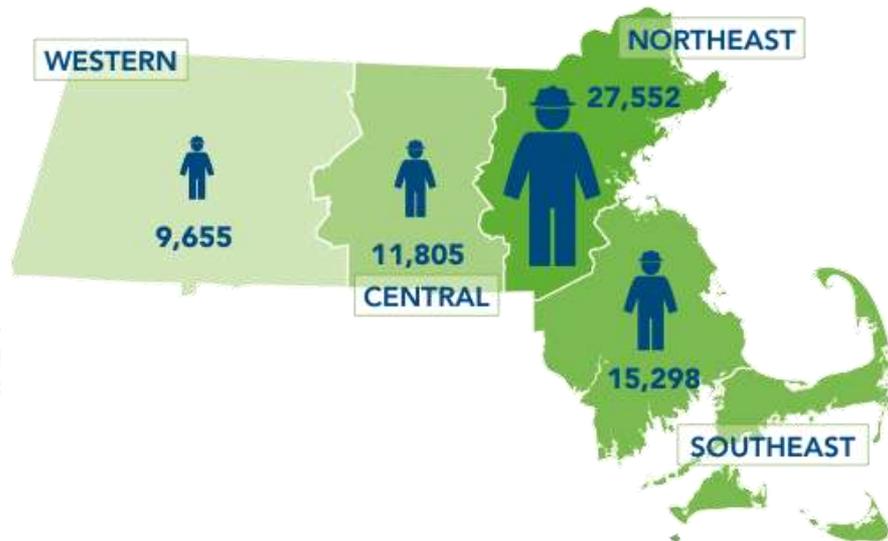
Easthampton Landfill 2.3MW- Photo Courtesy of Borrego Solar Systems, Inc.

Jobs & Opportunity (cont.)



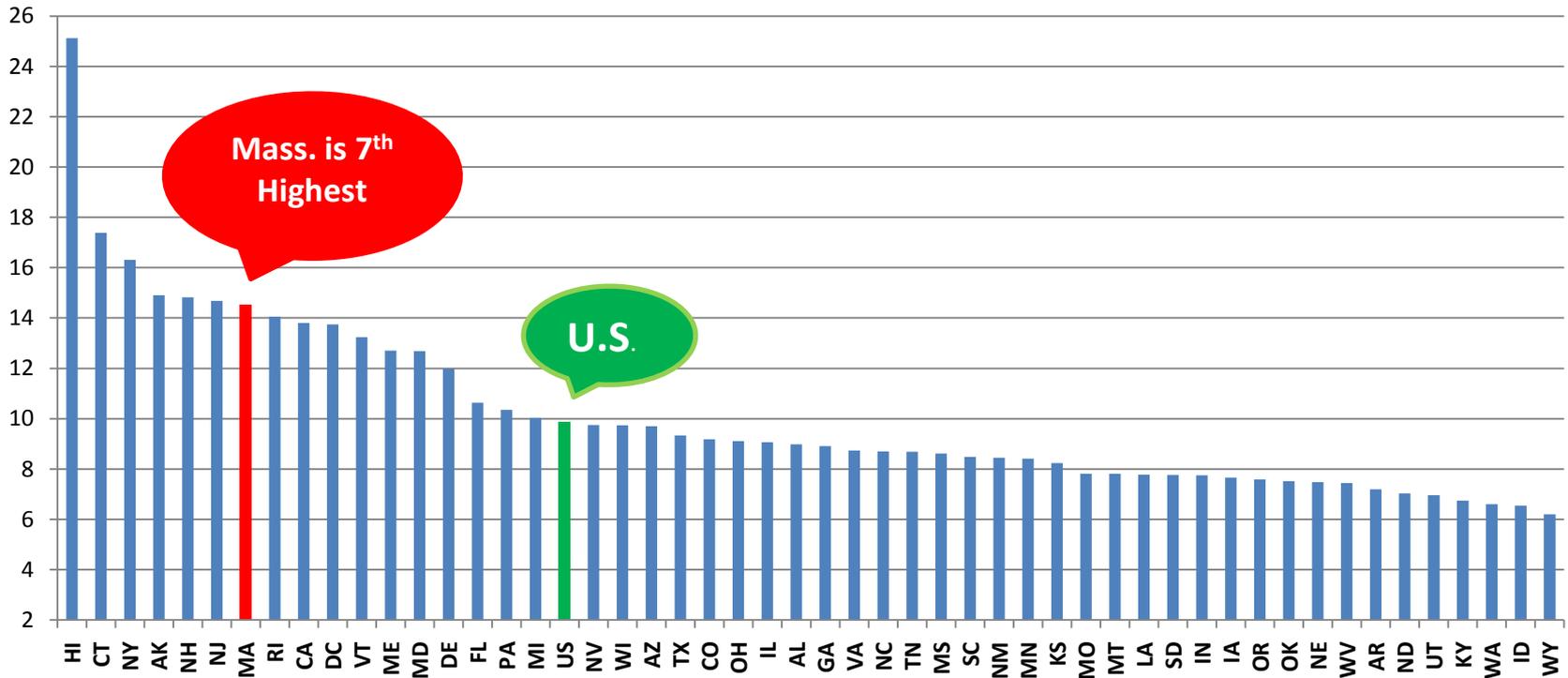
Clean Energy Workers are Distributed Throughout the Commonwealth

Total Clean Energy Workers by Region



Mass. Has High Electricity Prices!

2010 Average Retail Electricity Price c/kWh



Source: EIA Form 826

\$18B Energy Dollars Flow Out of MA

We spend \$22B per year on energy; 80% leaves MA

MA Energy Imports 2008	\$B
Fuel Oil (heating, diesel)	\$5.0
Gasoline	\$9.2
Jet Fuel	\$1.4
Other Petroleum	\$0.9
Natural Gas	\$5.2
Coal	\$0.3
Total	\$22 B
Per Household Average ~	\$4,600

Oil & Natural Gas - Canada

Natural Gas - U.S. Gulf Coast

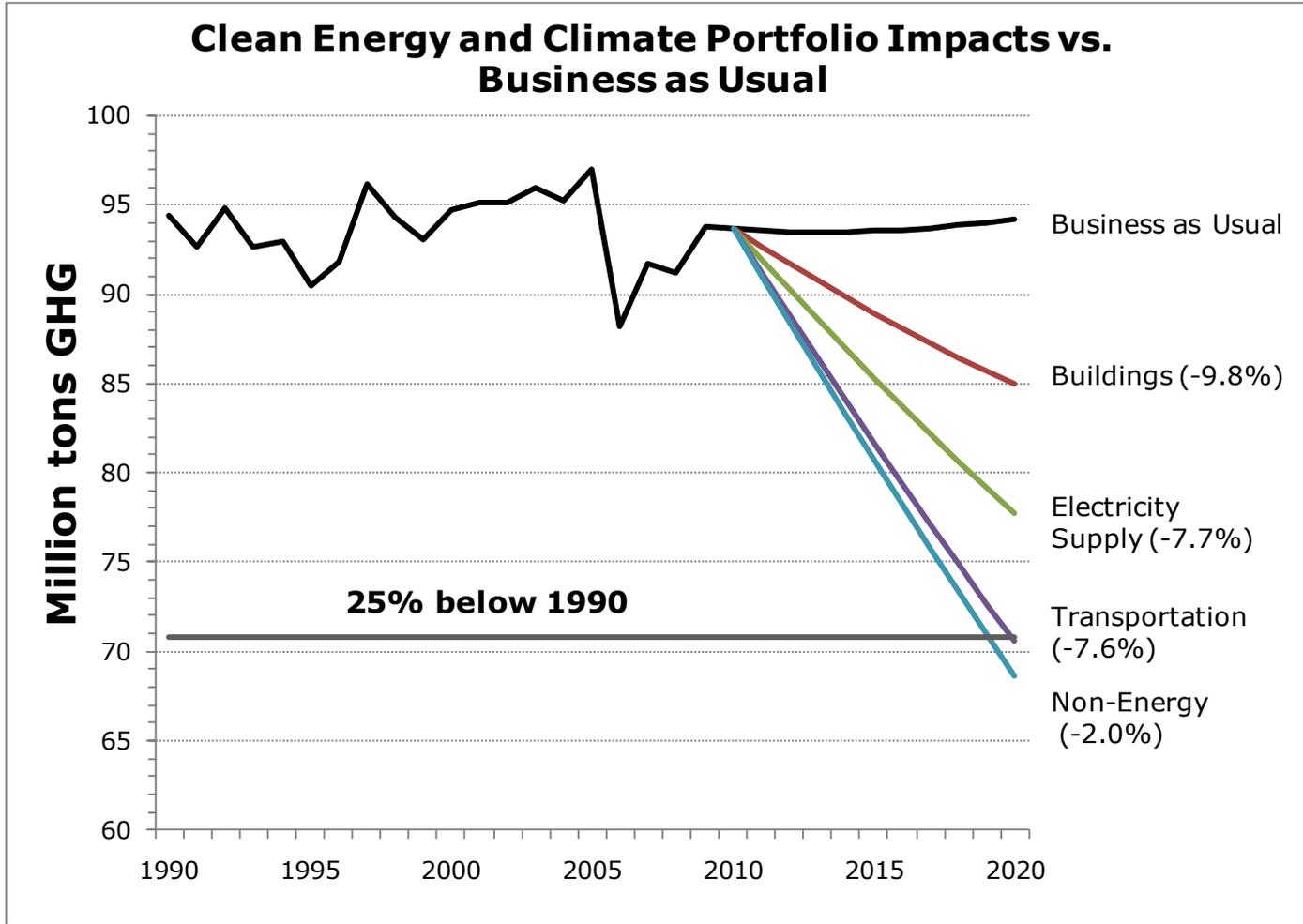
Oil & Natural Gas - Middle East

Natural Gas - Caribbean

Coal - Colombia

Oil - Venezuela

Clean Energy and Climate Plan for 2020



Mass Clean Energy Mandates

- 2007 Top Priority for Patrick Administration
- **2008 Global Warming Solutions Act**
 - Comprehensive Program -> Climate Change
 - Goal 25 % Below 1990 GHG levels by 2020
- **2008 Green Communities Act (GCA)**
 - Supports Development of Clean Energy Resources
 - Expands Efforts to Promote Energy Efficiency
 - **Increased the Renewable Energy Portfolio Standard**

Renewable Energy Portfolio Standard (RPS)

- **Renewable Energy Portfolio Standard (RPS)**

- 2003 Statutory obligation for energy suppliers to obtain energy from renewable sources
- 2003 obligation of 1% (increasing by 0.5% per year)
- 2008 GCA – increased to 1% per year

- **Renewable Energy Certificate (REC)**

- Created each time a qualified system generates 1 megawatt hour (MWh = 1,000 kwh) of electricity.
- Suppliers must purchase a number of RECs equal to the percentage for that particular compliance year (e.g. 5% in 2010).

Summary of MA Renewable Energy Portfolio Standard (RPS) Programs

RPS Class	Sub Class	Technology	Minimum Standard	ACP Rate, \$/MWh
Class I		Wind, LFG, Biomass, Solar, Small Hydro, etc.	5% in 2010, increases 1%/year	\$60.93; increases with CPI
	Solar Carve-Out	Solar PV; 6 MW or less, in MA	set by formula to grow installed capacity to 400 MW	\$550; can be reduced by DOER (10 y schedule)
Class II		same as Class I	3.6%, stays constant	\$25; increases with CPI
	Waste Energy	Municipal Solid Waste Combustors, in MA	3.5%, stays constant	\$10; increases with CPI
APS		CHP, flywheels, paper-derived fuel, gasification	0.5% in 2010; increases to 5% in 2020	\$20; increases with CPI



Administration Clean Energy Goals

- 15% of Massachusetts electricity supplied from renewable sources by 2020.
 - ***Solar: 250 MWs installed by 2017, 400 MWs generated by 2020** (105+ MW as of 5/1/12)
 - **Wind: 2,000 MWs by 2020** (54 MW as of 5/1/12)

**Focus of BWSC efforts*

Solar Incentives in Massachusetts

**High electricity prices + Reduced Solar PV Costs +
Numerous Incentives = Economical solar projects**

Incentives
State and Federal Tax Incentives
Rebates from MassCEC
Net Metering
SREC Sales
Low/No money down options
Power Purchase Agreements (PPA's)



www.house-power.com/blog/wp-content/uploads/2009/12/iStock_000009001180XSmall.jpg

Solar Incentives in Massachusetts (cont.)

- Database of State Incentives for Renewable & Efficiency
- www.DSIRE.org
- BWSC Fact Sheet (under development)



CLEAN ENERGY RESULTS

Advancing renewable energy & energy efficiency in the Commonwealth

- Clean Energy Results Program (CERP)
- Established in the Fall of 2011
- In conjunction with:
 - Mass Department of Energy Resources (DOER)
 - Mass Clean Energy Center (MassCEC)
- In an effort to:
 - Further MA Clean Energy Goals
 - **Develop projects that meet RPS!**
 - Create economic growth and employment opportunities



Three Elements of CERP

1. Project-Specific Support and Coordination

- Permitting/Compliance Assistance
- Regulatory and Financial Assistance

2. Regulatory Review and Streamlining

- Remove Regulatory Barriers
- Financial Incentives

3. Broad Public Education and Engagement

- Coordinated Outreach (DOER, MassCEC)
- Communicate Project Benefits/Address Misconceptions

Commissioner's BWSC Specific Goals

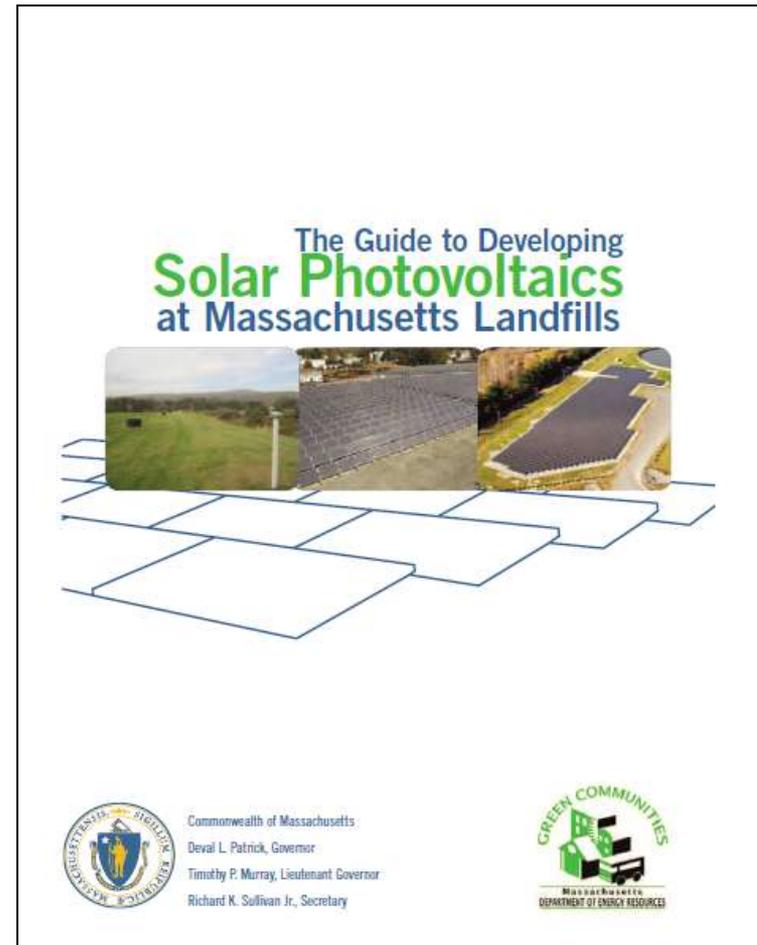
(refer to CERP Brochure page 3)

- 1. By 2020, achieve 50 megawatts of new solar photovoltaic on underutilized contaminated land**
 - BWSC Brownfields (25MW) and BWP Landfills (25 MWs)
 - creating green jobs and tax revenue benefitting Massachusetts communities.

- 2. Promote the use of Green Remediation at state and federally regulated contaminated sites**
 - Maximize the net environmental benefit
 - Considering: remedy energy requirements, efficiency of on-site activities, reduction of impacts on surrounding areas.

Bureau of Resource Protection (BWP) - Landfills

- Closed & Capped Landfills
- 6,000 +/- acres
- 22 renewable energy projects approved to date
- “Landfill Profiles List” available online
 - Ownership
 - Operational status
 - Acreage
 - Wind speed
 - Distance to nearest electricity transmission lines, etc.
- Municipal Workshops
 - Planned July 2012



CERP Background/Goals

Questions?
Thoughts?
Concerns?



**BWSC CERP GOAL No. 1:
25 MWs of Solar Photovoltaic (PV) on
Contaminated Land**

US Environmental Protection Agency's “RE-Powering America’s Land” Initiative

- Launched 2008
- Mapped over 15 million acres with RE potential
 - Superfund, RCRA, LUST, Mining, etc.
- 30,000 “Superfund” acres in MA
- Liability Fact Sheet (Final 3/2011)
- Landfill/Contaminated Land Development Guidance (under Development)
- <http://www.epa.gov/renewableenergyland/>



BWSC Goal No. 1 Efforts: 25 MW PV

1. Project-Specific Support and Coordination

- Compliance Assistance to any Renewable Energy Project Proponents
- Current Activities:
 - Shaffer landfill
 - Charles George
 - Sullivan's Ledge
 - W.R. Grace

BWSC Goal No. 1 Efforts : 25 MW PV (cont.)

2. Regulatory Review and Streamlining

– Addressing 21E Liability Concerns

- “Ground Leases”

– Nothing else planned

– Suggestions?

- (toward helping projects get developed)

BWSC Goal No. 1 Efforts: 25 MW PV (cont.)

3. Broad Public Education and Engagement

- Outreach to LSPA Association
 - Education Committee (April)
 - LSPA Board (April)
 - Tech Practices (May)
 - Membership (September)
 - Newsletter Article(s)
- “PV on Contaminated Lands” Educational Workshop/Forum
 - Fall 2012?
- BWSC Fact Sheet and Guidance Development
- **Contaminated Sites Profile List** (e.g. Landfills)

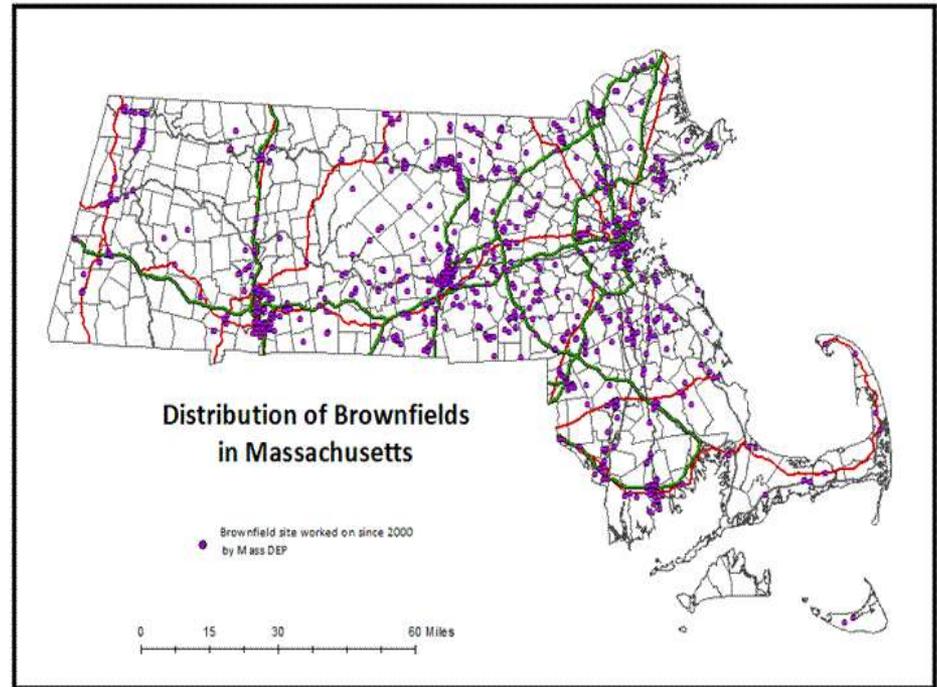
Contaminated Sites Profile List

- ~ 880 MassDEP
“Brownfield” Sites
– of 34,000 sites
- 36 EPA “Superfund”
Sites in MA



Contaminated Sites Profile List (cont.)

- Under Development!
- 35% are 4 Acres or greater
- Sites up to 700 + Acres
- 30% located within 1 mile or less of utility line
- 85% located within an investor-owned utility region



CASE STUDY: Western Massachusetts Electric Company 1.8 MW Solar Project

- Two Parcels – Pittsfield
 - 1) WMECO - 8 Acres
 - 2) PEDDA – 2 Acres
- 6,500 panels, ground-mounted on 10 acres
- Power for ~300 homes
- \$9.5M of investment
- Concern over liability and permitting
- State/Federal Cleanup Programs
- AULs/Grant of Env. Restriction
- Began Operation October 2010



BWSC Goal No. 1 Efforts: 25 MW PV

Questions?
Thoughts?
Concerns?



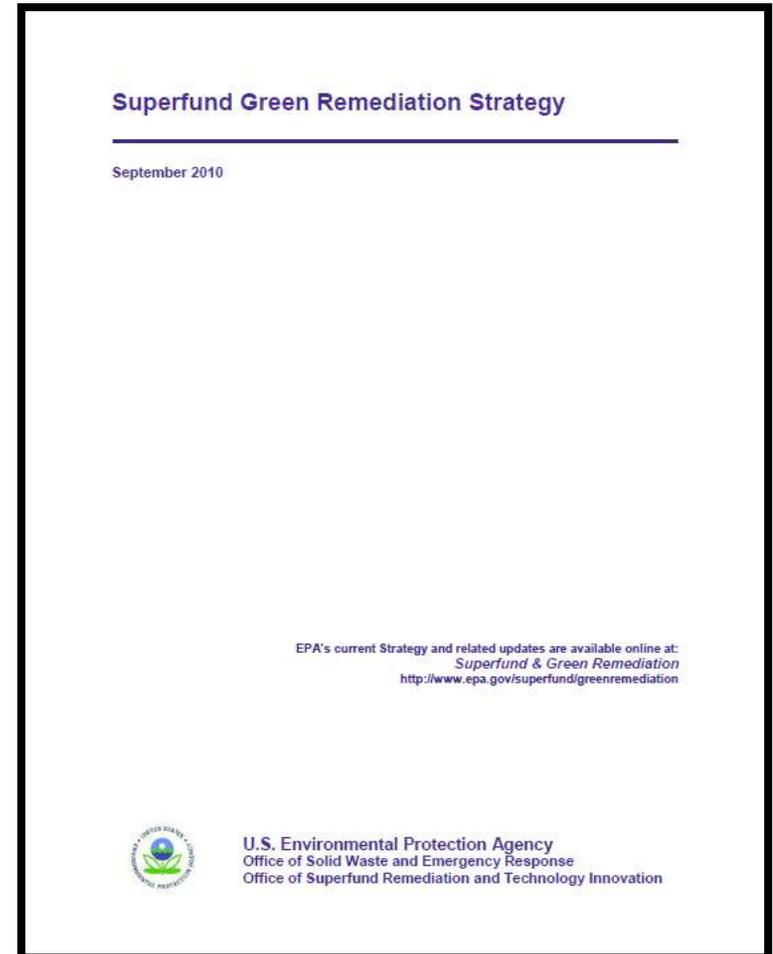
BWSC CERP GOAL No. 2: Promoting the use of “Green Remediation” at State & Federal Sites

Green Remediation

- Practice of considering environmental impacts/footprint of remediation activities to **maximize the net environmental benefit through every phase of the cleanup process** including:
 - Total Energy Use and Renewable Energy Use (*CERP RPS Eligible Projects*)
 - Air Pollutants and Greenhouse Gas Emissions
 - Water Use and Impacts to Water Resources
 - Materials Management and Waste Reduction
 - Land Management and Ecosystems Protection

US Environmental Protection Agency's "Superfund Green Remediation Strategy"

- September 2010 - Initiatives:
- Maximize use of renewable energy
 - Goal of using 100% renewable energy to power site operations, and identify methods for increasing energy efficiency;
- Incorporate green remediation factors as part of remedy optimization evaluations
- Pursue ways to reduce the use of natural resources and energy during remedial actions and when developing cleanup alternatives;
- <http://www.epa.gov/superfund/greenremediation/>



BWSC GOAL No. 2: Promoting the Use of Green Remediation

1. Project-Specific Support and Coordination

– Federal Superfund Sites:

- EPA doing optimization reviews at several sites
- **Baird & McGuire Superfund Site Technical & Financial Feasibility Study for Solar Photovoltaic**

– 21E Sites:

- Evaluating Universe of sites w/active remedial systems (estimated at 900)
- Focus on energy efficiency and renewable opportunities (*CERP RPS eligible projects*)
- Work with PRPs/LSPs on specific projects/sites

BWSC GOAL No. 2: Promoting the Use of Green Remediation (cont.)

2. Regulatory Review and Streamlining

– Considering the application of Green Remediation as a “Performance Standard” for the conduct of Response Actions.

- e.g. Consideration of energy use in Remedy Selection

- **Associated Guidance**

– Considering reference to the ASTM Guide and associated Best Management Practices (BMPs) for performance standard (others: ITRC, SuRF)

BWSC GOAL No. 2: Promoting the Use of Green Remediation (cont.)

3. Broad Public Education and Engagement

- Outreach to LSPA Association
 - Education Committee (April)
 - LSPA Board (April)
 - Tech Practices (May)
 - Membership (September)
 - Newsletter Article(s)
- “Green Remediation” Educational Workshop/Forum
 - Fall 2012?
- “Sustainability Policy”/website
- **Develop Green Remediation Incentives**

Green Remediation

Incentives Under Consideration:

- DOER Energy Efficiency Programs
- Collaborating with the Mass Office of Technical Assistance & Technology (OTA)
- Public Recognition Awards for Projects
- Certification Program for LSPs (e.g. Eco-Brokers)
- Others?

BWSC GOAL No. 2: Promoting the Use of Green Remediation

Questions?
Thoughts?
Concerns?



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Mass Department of Environmental Protection
(MassDEP) Brownfields Program:

<http://www.mass.gov/dep/cleanup/brownfie.htm>

Mass Department of Energy Resources (DOER)

[http://www.mass.gov/?pageID=eoeaaagencylanding&L=5&L0=Home&L1=Grants+%26+Technical+Assistance&L2=Guidance+%26+Technical+Assistance&L3=Agencies+and+Divisions&L4=Department+of+Energy+Resources+\(DOER\)&sid=Eoea](http://www.mass.gov/?pageID=eoeaaagencylanding&L=5&L0=Home&L1=Grants+%26+Technical+Assistance&L2=Guidance+%26+Technical+Assistance&L3=Agencies+and+Divisions&L4=Department+of+Energy+Resources+(DOER)&sid=Eoea)

Massachusetts Clean Energy Center (CEC)

<http://masscec.com/index.cfm/page/About-Clean-Energy/pid/11138>