

**Association of State and Territorial
Solid Waste Management Officials
(ASTSWMO)**

Incentives for Greener Cleanups

**Prepared by the Greener Cleanups Task Force
Under the Sustainability Subcommittee**

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Introduction

Conventional site remediation, while effective in mitigating contaminants that threaten human health and environment, often employ technologies that are not always environmentally sustainable. These technologies can be energy intensive, emit significant quantities of greenhouse gases, and utilize extensive natural resources. Green Remediation considers the overall environmental effects of a site remediation without compromising the mitigation of contaminant releases. This approach incorporates measures to maximize the net environmental benefits of a cleanup action.

The mission of the ASTSWMO Greener Cleanups Task Force is to facilitate cleanup decisions that increase net environmental benefits of remediation and contribute to site sustainability. To achieve this mission the Task Force identified nine initiatives that it believes will incentivize entities to employ greener remediation approaches at underground storage tank, Brownfields, Federal Facility, RCRA, Superfund, and State site cleanups.

Greener practices can be perceived as costly, time consuming, and less certain in their outcomes than conventional remediation. To overcome these perceptions, incentives are needed for parties who perform site cleanups and the regulatory oversight agencies that oversee these activities.

Loans and Grants

U.S. EPA and several States have loan and grant programs for Brownfields site investigations and cleanups. Some EPA Regions and States, as well as local governments, are looking for opportunities through Brownfields projects to promote greener cleanups and more sustainable development. These Regions and States can encourage loan or grant applicants and contractors to propose innovative and green approaches in their applications. While typically the criteria and objectives of loans and grants do not speak specifically to greener cleanups, there are several avenues within which existing programs can be used to support greener, more sustainable approaches, such as:

- Green cleanup practices proposed in loan or grant applications may be considered part of the benefits to public health and welfare and may also be considered a more effective means of addressing contamination on a proposed project
- Grants can be used to provide contracted technical support for identifying and implementing green approaches on a project
- Fund managers may be able to structure loans in ways that support greener cleanup technologies that may have a higher initial cost, but provide energy and cost savings over time
- Grant applications may identify a new but more costly green technology that could be implemented if additional funding were available

EPA's guidelines for Brownfields assessment, cleanup, and revolving loan fund (RLF) grants include evaluation of project benefits. One of the criteria includes the extent to which a project's anticipated outcomes promote general welfare of the targeted community through the improvement of public health and safety, and its economy and environment. The criteria for Environmental Benefits from Infrastructure Reuse/Sustainable Reuse specifically include a reference to Green Remediation. Greener cleanups that take into account impacts on the community in terms of limiting energy use and greenhouse gas emissions, preferred end use, and other factors, may garner additional points in meeting grant criteria for benefiting public health and welfare.

The U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy (EERE) offers grants to industry and outside agencies for renewable energy and energy-efficiency research and development. Assistance is available in the form of funding, property, or services. EERE also provides grants to State energy offices for energy efficiency and renewable energy demonstration projects as well as analyses, evaluation, and information dissemination. A creatively structured grant proposal could feature a more energy efficient remediation process or technology at a Brownfields site.

In 2008 EPA began working with communities on Brownfields Sustainability Pilots by providing funds for technical assistance to support the incorporation of sustainable practices into the planning, design, and implementation of Brownfields projects. EPA assistance will support activities such as the reuse and recycling of construction and demolition materials, green building and infrastructure design, energy efficiency, water conservation, renewable energy development, and native landscaping. If EPA continues this program, future applicants may be provided funding to hire consultants with expertise in sustainable remediation. Such consultants could identify greener cleanup approaches and perform life cycle analyses of conventional cleanup projects with the goal of identifying more sustainable approaches to site cleanup and redevelopment.

Reduced Processing Time and Fees for Remedy Documents

Potential incentives for remediating parties may include expedited regulatory review and/or regulatory cost savings, particularly those challenged by real estate transaction and development deadlines.

Several options may be available for regulatory agencies to expedite review by streamlining processes for work plans, risk assessments, feasibility studies, corrective measures studies, remedial/removal/risk management plans, and interim remedial measures if the remediating party commits to green remediation practices. These may include:

- Giving priority over other projects in the review process (i.e., shorten the lag time between submittal of the document and start of the review); however, quality and thoroughness of the review must not be compromised
- Developing presumptive remedies that incorporate green remediation, especially for similar sites (petroleum underground storage tanks, pipeline releases, etc.)
- Providing a One-Stop Shop for remediating parties, such as for permitting, through a memorandum of understanding among the various oversight programs. For example, underground injection control (UIC) permits could be waived with approval authority given to the remedial oversight program. The State of Missouri's Water Program has given its Hazardous Waste Program, through a MOU, authority to approve UIC projects at remediation sites, provided all the requirements typically needed for a permit are met. This has expedited the approval of remedial action plans for such projects.
- Authorizing the beneficial use of minimally contaminated soil as fill material under specified conditions, eliminating the need for site-specific determinations while also reducing disposal costs
- Assigning more experienced project managers or those specializing in green remediation technologies to the project
- Streamlining processes, including administrative paperwork and review procedures

Fees and costs charged by regulatory agencies are constrained by rules, regulations or directives; but when possible, a reduction in fees or costs could be an incentive for selecting green remediation. Some areas for incorporation are:

- Reduced oversight costs
- Reduced permit fees
- Relief from enforcement fees
- Reduced Long-Term Stewardship fees for sites with engineered or institutional controls or Operations and Maintenance obligations
- Prioritization for reimbursement from State Underground Storage Tank Funds or State Dry Cleaner Remediation Funds.

Fee Incentives for Green Remediation

Fees and taxes may be used as incentives for green remediation. Fees could influence the remedy in the direction of a greener or more sustainable cleanup and may be applied in a positive or negative manner. However, positive incentives such as discounted fees, as described previously, are generally easier to implement and are less likely to be interpreted as punitive and arbitrary. Although fees are only one of many factors, in some cases they could be the determining factor between equally protective and effective remedies.

Tax credits have already been shown to provide an incentive for Brownfields redevelopment. These tax credits could be increased to include the use of green remediation efforts. For example, a tax credit could be provided to cover or reduce the cost of recycling concrete or construction debris resulting from the Brownfields remediation. The tax credit could also be expanded to cover installation of renewable energy or energy conservation features.

If a remedy complies with existing laws and regulations, higher fees for a less green cleanup could be interpreted as punitive. A better approach would be to establish new or higher fees which apply to all sites, but which may be discounted for sites meeting certain pre-established green remediation criteria. Establishment of new fees generally requires legislation.

Any qualitative or subjective assessment resulting in application of higher fees to the cleanup would likely be challenged. Therefore, use of fees as incentives to greener cleanups must generally be imposed based upon quantifiable benchmarks or other milestones. For example, a fee should not be assessed based upon the intent to clean up to a certain level (e.g., work plan approval) unless the work plan selects a clearly greener technology. Completion of the design, approval of a final engineering report, or issuance of a release of liability or certificate of completion are milestones for which the sustainability of the remedy could be assessed. Since rebating previously collected fees, such as oversight costs (cost recovery), could be problematic from an accounting or regulatory perspective, a delay in collection of some fees until an assessment of how the project compares to the established green remediation criteria may be prudent.

Examples of Higher Fees

- **Off-site Disposal or Treatment**

Higher landfill fees could be assessed because land and soil resources are used at the landfill and backfill is required at the site. These fees may be assessed as per ton fees on the generator.

Any time waste is shipped from a remedial site, the remedy accrues additional negative impacts relative to its sustainability in the form of fossil fuel use, emissions of greenhouse gases, particulates, SO₂, and other pollutants and impacts. There are similar environmental impacts associated with excavation of the soil, mining, transportation, and placement of backfill materials. Burying the waste in a landfill contains, but does not eliminate, the waste. Excavation and off-site disposal are often, but not always, a less green choice when there are several viable alternatives. A site-specific analysis of the sustainability of the various alternatives may be needed to determine if land filling is less green and therefore potentially subject to higher fees.

- **Water Discharge**

Water discharged for non-beneficial uses could be assessed fees for inefficient use of water resources. These fees may be assessed through discharge permit fees.

When contaminated groundwater is treated on site, the treated water must be discharged. Discharge to a POTW is generally not a net positive for the environment. It adds to the load and energy requirements of the POTW, and does not recharge the aquifer. Discharge to surface water also does not recharge the aquifer. A better use may be to re-inject the water into the aquifer, irrigate on-site native landscaping, or use it as part of the design to influence recovery of contaminants. Local water use regulations may inform the assessment of water use efficiency.

- **Land Use**

For sites with land use restrictions (institutional controls), higher fees can be assessed because a land resource is not utilized for its highest and best use. These could be assessed through fees related to the submission of certification for the institutional controls.

Reuse of formerly contaminated and previously developed land (Brownfields) is generally more sustainable than developing Greenfields. Brownfields are typically closer to infrastructure that would support reuse, and reuse of Brownfields can preserve farmland and wilderness. Sites that are not remediated to unrestricted use frequently have engineering controls or institutional controls (EC/ICs) applied to them to ensure the protectiveness of the remedy. The cleaner the site is upon completion of the remedial action, the higher or better use of the site may be. Local master use plans may inform assessment of the best use of a property. Sites that are restricted to lower uses may be assessed higher fees for periodic certification of the EC/ICs.

- **High Energy Remedies**

Fees could be assessed for remedies that use significant amounts of energy which are not generated sustainably. The fees could be assessed through a utility surcharge.

Parties using conventional technologies that have inherently higher energy input requirements could be assessed a surcharge unless it could be shown that the remedy was a net positive benefit to the environment relative to other feasible alternatives. The surcharge could be based on use (e.g., per KWH).

Contract Incentives

Government contracts for federal facility cleanups, federal Superfund cleanups, and State response sites could include award and other performance incentives for contractors to use greener methods for site investigations and cleanups.

Federal and State cleanup programs award several million dollars in government contract work each year. With an increasing government emphasis on energy use and carbon emissions as well as Federal and State Executive Orders to achieve sustainability, government organizations will increasingly look toward energy efficiency and reduced carbon emissions in its cleanup programs and associated contracting.

Green contracting can help leverage these efforts while rewarding those who have the ability to help government achieve its goals. Green contracting can include a preference for the acquisition of energy efficient and sustainable equipment or products and/or a preference for acquisition of energy efficient and sustainable materials or supplies. In some instances, a government agency may consider buying materials and supplies that have a higher purchase price than their counterparts but are more energy efficient or compatible with broader sustainability goals. One common example is paying more for cleaner or sustainably derived liquid fuels or renewable energy.

Publicity and Recognition

State agencies could incentivize green remediation by promoting individual efforts by site owners, developers and consultants. Such rewards could be directed at both specific projects and companies that commit to using green remediation practices. Before implementing a recognition program, States would need to determine the following:

- **Eligibility requirements**
Which regulatory program(s) would offer the recognition incentive? What projects or firms would qualify?
- **Selection criteria**
How green does the cleanup need to be? Should there be a scoring process? Qualitative or quantitative analysis?
- **Demonstration/Certification/Pledge**
How will States verify a greener cleanup? When would such a determination be made? What is the timeline from application to recognition?

- **Rewards**
What form should the recognition take? A State-issued certificate? Press releases to the media? Recognition at State conferences or workshops? Use of a State-issued green remediation logo/seal on site or company materials?
- **Staff Resources**
Do States have staff available with the appropriate technical capacity to review recognition requests?
- **Performance metrics**
Will States use data collected from recognition requests to track green remediation efforts more broadly? Could the data be used to identify better performance measures? How can site-specific accomplishments documented by the recognition program be used to improve existing best management practices?

U.S. EPA has initiated a Green Cleanup Standards Workgroup funded by the Office of Solid Waste and Emergency Response (OSWER) Innovations Pilot Funds. The workgroup is evaluating options for developing national voluntary standards and a conformity assessment process for green remediation practices. As proposed, the standard: 1) is voluntary, i.e., EPA is not mandating a new cleanup evaluation; 2) will be developed through a standard developing organization (SDO) ensuring a consensus based process with widespread input and transparency; 3) will be a uniform approach that can be implemented as an overlay to the various regulatory frameworks making it easier for stakeholders to implement; 4) will have the flexibility to allow States and cleanup programs to develop their own recognition options; and 5) will promote technology innovation through a market driven approach.

States are strongly encouraged to participate in the voluntary standards development process. Our experience with individual recognition programs, as well as States' use of other greener cleanup incentives, will be valuable to the EPA workgroup and the SDO.

Consultant Education and Accreditation

Analogous to LEED accredited professionals, consultants taking coursework in green remediation and experienced in projects using greener cleanup approaches could receive accreditation as green remediation consultants. These professionals can provide advice to cleanup parties that will help overcome reluctance to using greener cleanup practices. Given the limited supply of professionals experienced in green remediation, consultants possessing this accreditation would gain a strong marketing advantage in attracting clients.

With an increasing awareness of energy use and carbon emissions in environmental cleanups, it is clear that both current and past remedy selection practices in Federal and

State programs have not considered the broader environmental implications of cleanup including waste reuse/recycle, energy conservation, clean energy and long-term sustainability. Education and accreditation of consultants in green remediation approaches would provide an advanced knowledge base for evaluation of additional factors beyond existing remedy selection practices.

Education and accreditation would also provide direction to consultants aiming to incorporate greener approaches when planning and implementing cleanups at contaminated sites. State agencies or non-profit accrediting organizations could administer green remediation professional certification exams and continuing education programs. State and federal agencies can also partner with colleges and universities to administer such programs. Ideally, higher educational institutions would incorporate green remediation into their environmental science and engineering courses leading to bachelors and advanced degrees.

EPA is currently working to develop green remediation performance metrics and tracking mechanisms. These efforts, combined with a Green Cleanup Standard from a SDO, could evolve into an accreditation program and serve as a strong national incentive.

Increase Brownfields Credit for LEED or Other Green Building Programs

Brownfields redevelopment can be viewed as a green remediation because of the environmental benefits inherent in the cleanup and reuse of a Brownfields property. Research performed by the International City/County Management Association (ICMA), showed that Brownfields redevelopments achieved environmental benefits by reducing vehicle miles driven, reducing greenhouse gas emissions, and more efficiently using existing infrastructure from utilities to transportation. Based on these obvious sustainable benefits, incentives that increase the reuse of Brownfields properties should be developed as a means of improving the connections between green cleanup concepts and Brownfields.

One important incentive would be an increase in the credit allowable for Brownfields redevelopment in the LEED Certification process. Out of 69 possible points for LEED certification of new construction projects, only one point can be claimed for a Brownfields Cleanup. This is the same amount also claimed for bicycle racks, parking spaces for fuel efficient vehicles, and indoor/outdoor lighting control systems.

ASTSWMO, U.S. EPA, and States can engage in discussions with the United States Green Building Council to increase the LEED points for environmental cleanup activities, with additional credit for using green remediation methods. The credits could be tied to the Sustainable Sites Section with points possible for reductions in groundwater contamination from the property and reduction in exposure to contaminated soils. Under the Indoor Environmental Quality Section a point could be available for removal

of asbestos and/or lead-based paint from existing structures. Another option would be to amend the LEED Certification to include an Environmental Remediation Section that would have the credits mentioned above.

Supplemental Environmental Projects

A Supplemental Environmental Project (SEP) is a component of a settlement agreement intended to offset a monetary penalty by providing an environmental benefit related to the violation that is being addressed. The SEP must advance at least one of the objectives of the environmental statutes that is the basis of the violation and must have adequate nexus. A project has adequate nexus if it is designed to reduce the likelihood of similar violations in the future, reduces the adverse impact to public health or the environment related to the violation, or reduces the risk to public health or the environment potentially affected by the violation.

A SEP must involve activities that the violator would not otherwise be legally required to complete. Implementation of green remediation through a SEP provides violators with an opportunity to improve the environmental benefits of their cleanup programs by allocating funds for analysis and implementation that would otherwise be paid in penalties. The amount of the penalty offset by the SEP, however, must not exceed the increase in total remediation cost attributed to implementation of green remediation when compared to a traditional remedy. If green remediation results in a net savings for the remediation project, no penalty amount may be offset by the SEP.

Violations conducive to settlement with a Green Remediation SEP include:

- Release of hazardous waste or substances that requires investigation and cleanup
- Failure to complete release investigations in a timely or adequate manner
- Failure to design and implement corrective action plans in a timely or adequate manner
- Failure to adequately revise corrective action plans that have not been successful in meeting cleanup objectives

The Green Remediation SEP may include any or all of the following components:

- Costs for the assessment of the sustainability impacts of an existing cleanup program
- Costs for the evaluation and selection of environmentally-preferable cleanup options
- Increased costs for design and construction of the greener option when compared to traditional cleanup approaches
- Increased costs for operation of the greener option when compared to traditional cleanup approaches

- Cost for reporting on the improvements gained, including outreach efforts to share experience and successes with potential Green Remediation candidates

In determining which cost elements of a green remediation project are eligible for a penalty offset, it is important to not only consider cost increases over traditional remediation practices, but also any income that might be produced. For example, if a solar panel was installed to operate a remedial action, a penalty reduction could be offered for the cost of installation. If the solar system cost \$100K and the excess energy was sold to the power company for \$30K, then the penalty could be offset by only \$70K.

Carbon Offsets and Credits

Conventional remediation technologies that utilize heavy construction equipment, transport materials to and from a site, and have on-site mechanical systems are energy intensive and emit or cause the emission of significant quantities of greenhouse gases (GHG). California passed legislation to reduce GHG emissions to 1990 levels by 2020 and partnered with Arizona, New Mexico, Oregon, Washington, Utah, and Montana and the Canadian provinces of British Columbia, Manitoba, Ontario, and Quebec in the Western Climate Initiative (WCI). The partnership's GHG reduction goals are about equal to the goals of California's legislation.

To achieve GHG reduction goals, California and the WCI partners are developing a regional cap-and-trade program that caps the amount of GHG emissions for sources. This program is expected to be implemented by 2012. Sources subject to the program, including energy producers and consumers, would determine the least expensive compliance strategies. The emissions allowed under the cap, denominated as metric tons of carbon dioxide equivalents, become the GHG allowances issued by a State. These allowances can be banked for future use or traded with other facilities which can take advantage of reduction opportunities without buying additional emission allowances.

A covered source may have surplus reductions of GHG, known as offsets, which occur outside of the cap. Offsets are quantified using rigorous measurement and enforcement protocols. The ownership of offsets can be transferred to other facilities that are regulated as GHG sources. California and the WCI partners limit the use of offsets and allowances outside a cap to ensure adequate GHG reductions from those sources. Each WCI partner may adopt more stringent limits on using offsets and allowances outside a cap.

Offsets can encourage the use of clean, low carbon remediation technologies. An entity that generates offsets from a remediation project in one location can use the offsets to lower GHG reduction compliance costs at its facilities located elsewhere. Parties who generate remediation offsets can bank them for later use or sell them to other entities to help lower their GHG reduction costs. If multiple parties are involved, the offsets can

be allocated proportionate to each party's share of the total cleanup funds expended. Sites where remediation systems use low carbon fuels or renewable energy, such as solar or wind, instead of fossil fuels can generate carbon credits or provide GHG offsets. Former landfills with gas collection systems that combust the gas for energy purposes can also generate offsets for potent GHG such as methane and other volatile organic compounds.

In States that are party to the WCI, regulations are not yet in place for the cap and trade program and associated offsets. California expects to promulgate these regulations by 2010 and the other WCI partners are expected to follow suit afterwards. Regulatory agencies within the WCI partner States with jurisdiction over site remediation projects should work with counterpart air quality agencies to ensure that GHG reductions achieved by remediation projects are eligible as offsets for facilities owned by responsible parties in the WCI States. A key advantage is that offsets generated in one WCI State can be used as GHG reduction credits in another WCI State.

In addition to the WCI, States in other regions have partnered to develop regional emissions reductions programs. The Chicago Climate Exchange (CCX) operates a voluntary GHG cap and trade program that has branched out into Europe and other countries. CCX members contractually commit to GHG reductions of a certain magnitude per year from their original baseline. As with California and the WCI, reductions beyond a baseline level can be sold to other CCX members who need additional reductions. Similar to WCI and CCX, States in the northeastern United States have formed the Regional Greenhouse Gas Initiative. This initiative applies to the electric power generation industry sector in those States at this time and has a goal of reducing, by 2018, GHG to levels that are 10 percent below that generated in 2009.

Other States may join the WCI partnership, and U.S. EPA may develop a similar cap and trade program on a national level. An expanded WCI partnership or national cap and trade program can broaden the eligibility of offsets generated by remediation projects to be applied as GHG reduction credits at other locations. The cost savings for GHG reduction compliance can easily make up for additional funds expended for a sustainable remediation project.

ASTSWMO Greener Cleanups Task Force Survey on Green Remediation

In February 2009 the ASTSWMO Greener Cleanups Task Force sent a nine-question survey on green remediation to ASTSWMO's State contacts and members of its other task forces and subcommittees. The purpose of the survey was to get a cross-section of input from the various State programs and ASTSWMO members on the use of greener cleanup methods in each of the States. A total of 44 responses from individuals in 27 States were received.

In response to a survey question that asked which of the incentives identified in this paper would best motivate people to use greener cleanups, 81 percent said that loans and grants would best achieve this goal. Fifty-three percent of the respondents believed publicity and recognition efforts would be the best motivators, while 47 percent felt contract incentives would be best.

Another question asked State representatives to name which three incentives presented in this paper would be easiest to implement. Seventy-nine percent said publicity and recognition efforts while 51 percent said consultant education and accreditation would best achieve this goal. Twenty-five percent of the respondents felt that increasing Brownfields LEED certification points would be easiest to implement, and another 25 percent of the respondents said that contract incentives would be easiest to implement.

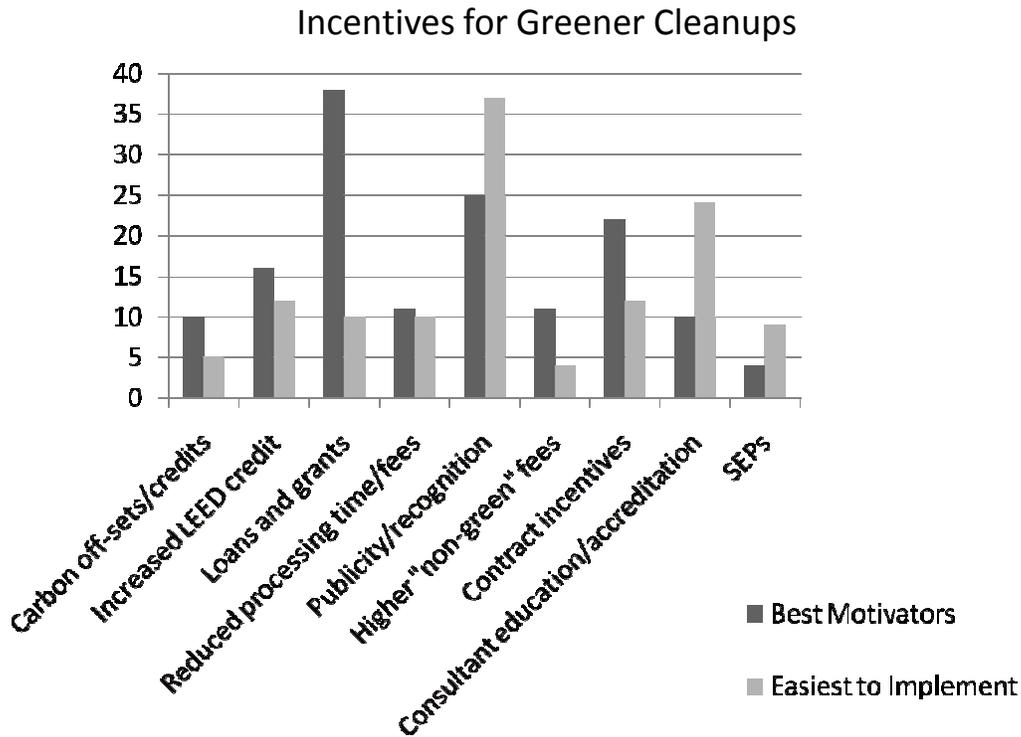


Table 1: Considerations for Green Remediation Incentives

Incentive	Pro	Con
Carbon Off-Sets and Credits	<ul style="list-style-type: none"> • Market-based alternative to command-and-control regulation • Greenhouse Gas (GHG) emissions compliance cost savings can offset any higher costs of greener remediation alternatives • Can be available to a wide array of cleanup project proponents who have facilities that must comply 	<ul style="list-style-type: none"> • Program not expected to be implemented until 2012 • Rigorous methods needed to demonstrate offsets are real, quantifiable, permanent, enforceable, and can be verified • Political opposition from some who view carbon offsets and credits as ineffective • Not every State has a program
Increase Brownfields Credit for LEED Points	<ul style="list-style-type: none"> • LEED Certification is an established system that's well accepted • Strong connection between Brownfields and sustainability • Tying green building certification to a Brownfields project can incentivize parties to use green cleanup technologies 	<ul style="list-style-type: none"> • Resistance to changing the established certification process • Might take several years to get the change accomplished
Loans and Grants	<ul style="list-style-type: none"> • Simply by making some money available, loans or grants may help defray costs of remediation, including additional cost for using greener technologies • Get more green remediation projects funded and implemented 	<ul style="list-style-type: none"> • State and federal loan and grant programs have not been developed yet to address green remediation specifically • Evaluating green remediation within the context of a Brownfields project may be the best approach currently
Reduced Processing Time and Fees	<ul style="list-style-type: none"> • Process and fee cost savings reduces costs of remediation • Streamlines process requirements by eliminating extraneous activities • Helps defray any incremental costs of using greener cleanup technologies 	<ul style="list-style-type: none"> • May require statutory changes and legislative approval • Agency budget impact of reduced fee collections • Process streamlining must not compromise technical and scientific validity of agency decisions or regulatory standards. • Process streamlining must not give unfair advantage of parties employing green remediation over those who do not
Publicity and Recognition	<ul style="list-style-type: none"> • Motivate companies and consultants to adopt greener practices • Help to increase the acceptance of innovative/alternative remedies • Low cost to implement 	<ul style="list-style-type: none"> • Uncertain validation process due to lack of established metrics • Staff time needed to develop and operate program

Incentive	Pro	Con
Fee Incentives	<ul style="list-style-type: none"> • Can influence remedy in the direction of greener or more sustainable cleanup • Lesser fees mean reduced costs of remediation • Provide a strong incentive to employ methods that conserve energy, land, and natural resources or emit less GHG 	<ul style="list-style-type: none"> • May require statutory changes and legislative approval • May impact regulatory agency budgets • Can be perceived as a punitive approach to using conventional methods and technologies • Fee incentives must be imposed based upon on quantifiable benchmarks or other milestones
Contract Incentives	<ul style="list-style-type: none"> • Defray any incremental costs associated with using greener cleanup methods • Government can use green contracting to encourage sustainable practices, reward those who help government achieve environmental benefits 	<ul style="list-style-type: none"> • Not all government agencies use consistent contract performance incentives and awards • Need for green remediation criteria to base contract incentives and award fees
Consultant Education and Accreditation	<ul style="list-style-type: none"> • Professional advice helps educate parties on greener cleanup practices and overcome hurdles to using such methods • National or Statewide certification processes provide standards of acceptable knowledge and experience • Accredited professionals can certify that remediation methods are sustainable 	<ul style="list-style-type: none"> • Green remediation practices not fully defined to develop a certification program • Few professionals that have expertise or experience in green cleanup practices
Supplemental Environmental Projects (SEP)	<ul style="list-style-type: none"> • Provides violators with opportunity to improve environmental benefits by allocating funds for greener cleanups that would otherwise be paid in penalties • Can fund greener cleanups in places other than where the violation occurred 	<ul style="list-style-type: none"> • Amount of penalty offset must not exceed the increase in total remediation cost attributed to green cleanup methods when compared to traditional methods • Must be verified that without the SEP, a conventional, less sustainable remediation method would have been employed

References

LEED Rating Systems, United States Green Building Council:

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=222>

Model language for including a SEP in an enforcement order:

<http://www.epa.gov/compliance/resources/policies/civil/seps>

State of California Climate Change Proposed Scoping Plan, Prepared by the California Air Resources Board, October 2008:

<http://www.arb.ca.gov/cc/scopingplan/document/psp.pdf>

U.S. Department of Energy Office of Energy Efficiency and Renewable Energy:

<http://www1.eere.energy.gov/femp/financing/mechanisms.html>

U. S. Environmental Protection Agency (U.S. EPA) Brownfields Cleanup Revolving Loan Fund Pilots/Grants: <http://www.epa.gov/swerosps/bf/rlfst.htm>

U.S. EPA Brownfields Sustainability Pilots:

http://www.epa.gov/brownfields/sustain_plts/

U.S. EPA Green Cleanup Standard Initiative: http://clu-in.org/greenremediation/subtab_b5.cfm

U.S. EPA Office of Superfund and Remediation Technology Innovation Remedial Action Contract Toolkit: http://www.clu-in.org/greenremediation/docs/RAC_Toolkit.pdf

U.S. EPA Policy on Supplemental Environmental Projects, May 1, 1998:

<http://www.epa.gov/compliance/resources/policies/civil/seps/fnl-sup-hermn-mem.pdf>