Welcome to the CLU-IN Internet Seminar

Renewable Energy on Potentially Contaminated Land Webinar Series:

Department of Energy's Technical Assistance Program

Sponsored by: U.S. Environmental Protection Agency/Center for Program Analysis
Delivered: December 15, 2010, 12:00 PM - 1:00 PM, EDT (17:00-18:00 GMT)

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Moderator:
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Visit the Clean Up Information Network online at www.cluin.org

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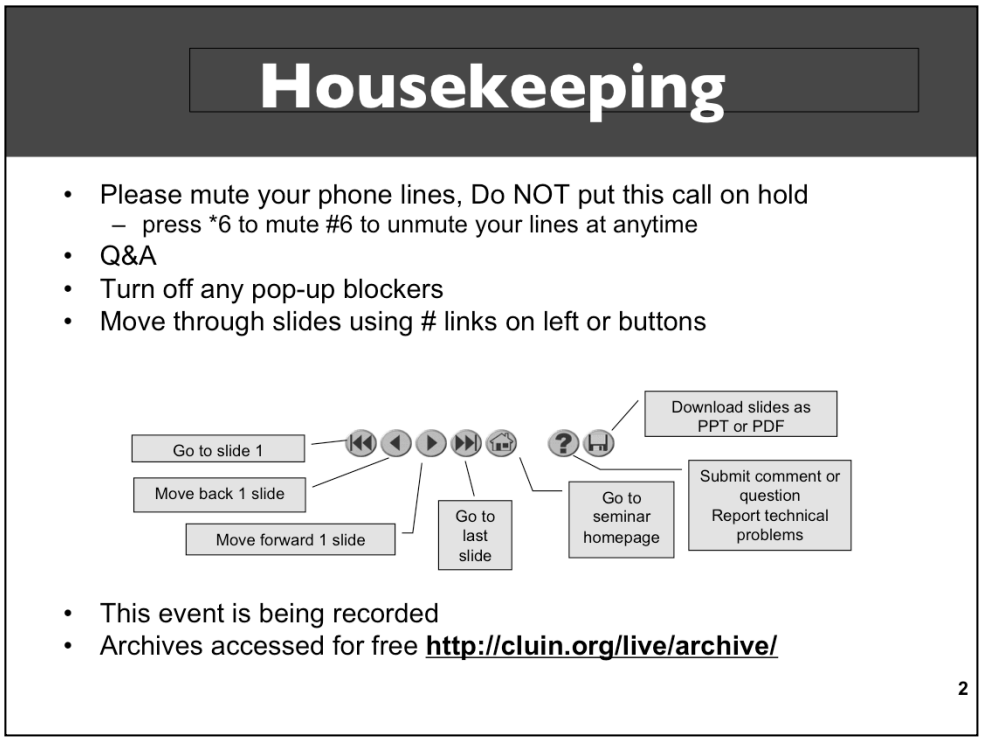
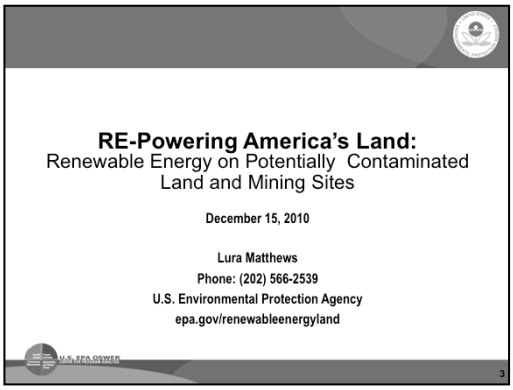


Although I'm sure that some of you have these rules memorized from previous CLU-IN events, let's run through them quickly for our new participants.

Please mute your phone lines during the seminar to minimize disruption and background noise. If you do not have a mute button, press *6 to mute #6 to unmute your lines at anytime. Also, please do NOT put this call on hold as this may bring delightful, but unwanted background music over the lines and interupt the seminar.

You should note that throughout the seminar, we will ask for your feedback. You do not need to wait for Q&A breaks to ask questions or provide comments. To submit comments/questions and report technical problems, please use the ? Icon at the top of your screen. You can move forward/backward in the slides by using the single arrow buttons (left moves back 1 slide, right moves advances 1 slide). The double arrowed buttons will take you to 1st and last slides respectively. You may also advance to any slide using the numbered links that appear on the left side of your screen. The button with a house icon will take you back to main seminar page which displays our agenda, speaker information, links to the slides and additional resources. Lastly, the button with a computer disc can be used to download and save today's presentation materials.

With that, please move to slide 3.


RE-Powering America's Land:
Renewable Energy on Potentially Contaminated Land and Mining Sites
December 15, 2010
Lura Matthews
Phone: (202) 566-2539
U.S. Environmental Protection Agency
epa.gov/renewableenergyland
U.S. EPA OSWER
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RE-Powering America's Land: Renewable Energy on Contaminated Land & Mining Sites

- EPA launched *RE-Powering America's Land* in 2008
- EPA has authority to investigate, assess, and clean up contaminated sites
- Recognized the potential redevelopment opportunities of these EPA tracked sites:
  - Brownfields
  - Superfund
  - Abandoned Mine Lands
  - RCRA – corrective action
  - Landfills

- To date, have mapped over 15 million acres, overlaid with RE potential
- epa.gov/renewableenergyland

U.S. EPA OSWER

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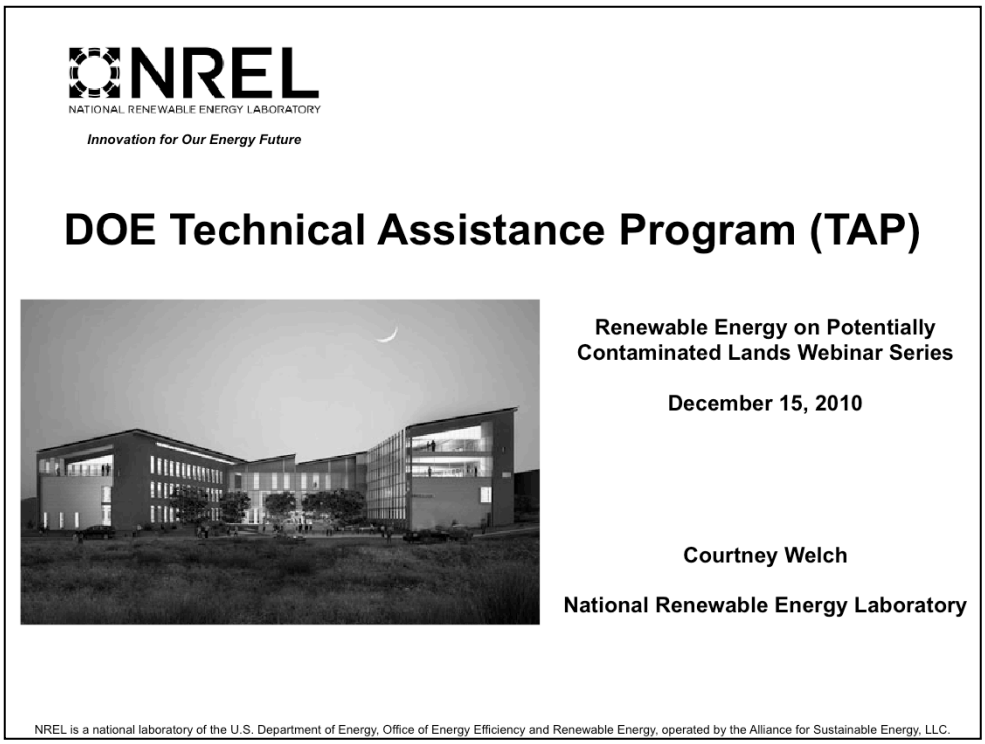
Why the Focus on Renewable Energy Development on EPA Tracked Sites?

- **Many of these sites offer:**
  - Existing infrastructure - transmission lines, roads and railway
  - Potentially lower transaction costs
  - Improved Public Support and Faster Permitting/Zoning
- **Siting renewable energy on these sites may:**
  - Increase economic value for the property
  - Further environmental sustainability by maximizing land use
  - Reduce the stress on greenfields
  - Provide clean energy for use on-site, locally, and/or to utility grid
  - Create local jobs

NREL Partnership

- **Screening Sites**
  - EPA and NREL developed screening criteria to determine renewable energy potential on EPA-tracked sites
- **Site Specific Analysis**
  - EPA partnered with NREL to evaluate the feasibility of siting renewable energy on specific sites
  - The analysis will include:
    - determining the best renewable energy technology for the site,
    - the optimal location for placement of the renewable energy technology,
    - potential energy generating capacity,
    - the return on the investment, and
    - the economic feasibility of the renewable energy projects.
  - Expected Outcome: A tool for the community to use when seeking out developers for the site



TAP is managed by a team in DOE's Weatherization and Intergovernmental Program - Office of Energy Efficiency and Renewable Energy.

TAP supports the Energy Efficiency and Conservation Block Grant Program (EECBG) and the State Energy Program (SEP) by providing state, local, and tribal officials the tools and resources needed to implement successful and sustainable clean energy programs. Through TAP, DOE has launched a $25 million effort to assist EECBG and SEP Recovery Act recipients. This effort, which is jointly-funded with EECBG and SEP Recovery Act dollars, is aimed at accelerating payments, improving project and program performance, and increasing the return on Recovery Act investments. From one-on-one assistance, to an extensive online resource library, to facilitation of peer exchange of best practices and lessons learned-TAP offers a wide range of resources to serve the needs of EECBG and SEP grantees.

What is TAP?

DOE's Technical Assistance Program (TAP) supports the Energy Efficiency and Conservation Block Grant Program (EECBG) and the State Energy Program (SEP) by providing state, local, and tribal officials the tools and resources needed to implement successful and sustainable clean energy programs.

The Department of Energy's (DOE) Technical Assistance Program (TAP) provides

state, local, and tribal officials the tools and resources needed to implement successful

and sustainable clean energy programs. This effort is aimed at:

-Accelerating the implementation of Recovery Act projects and programs,

-Improving their performance,

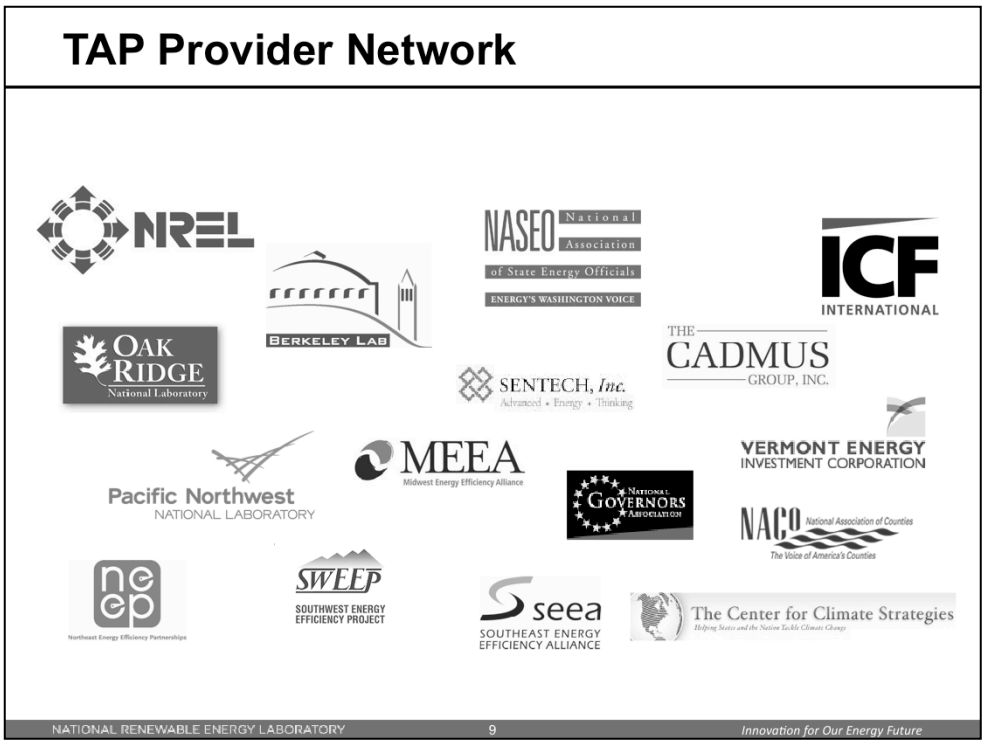
-Increasing the return on and sustainability of Recovery Act investments, and

-Building protracted clean energy capacity at the state, local, and tribal level.

From one-on-one assistance, to an extensive online resource library, to facilitation of

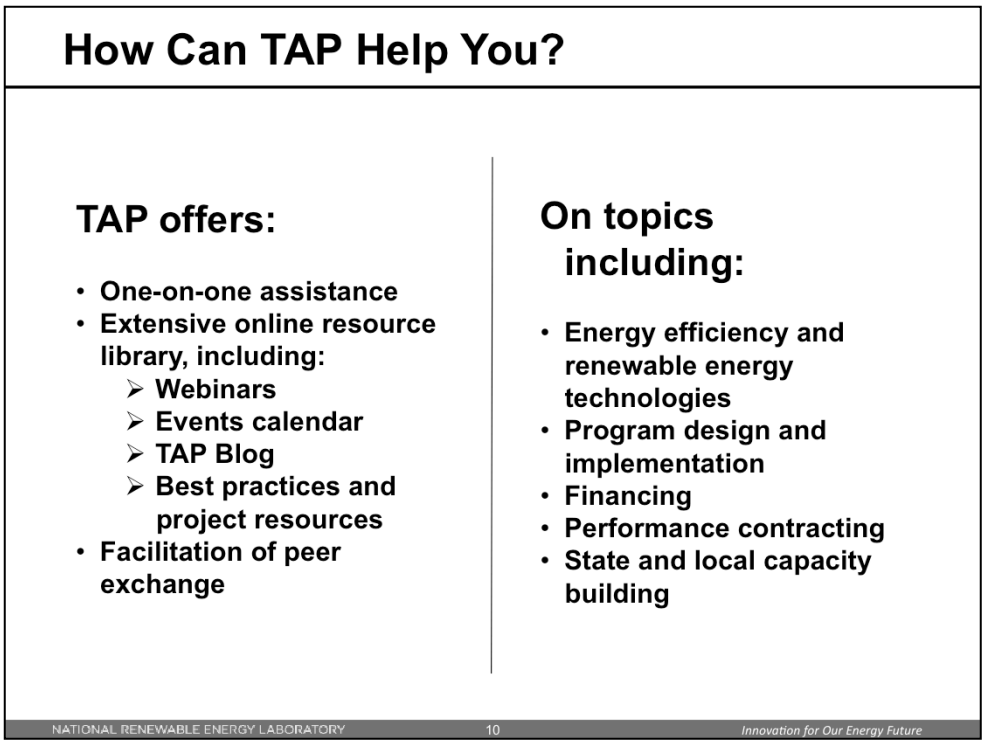
peer exchange of best practices and lessons learned—TAP offers a wide range of

resources to serve the needs of state, local and tribal officials and their staff.



Through TAP, state, local and tribal officials (which include Recovery Act -funded SEP and EECBG grantees and subgrantees) are also eligible to receive free direct assistance from the TAP PROVIDER NETWORK - a network of over 200 technical experts.

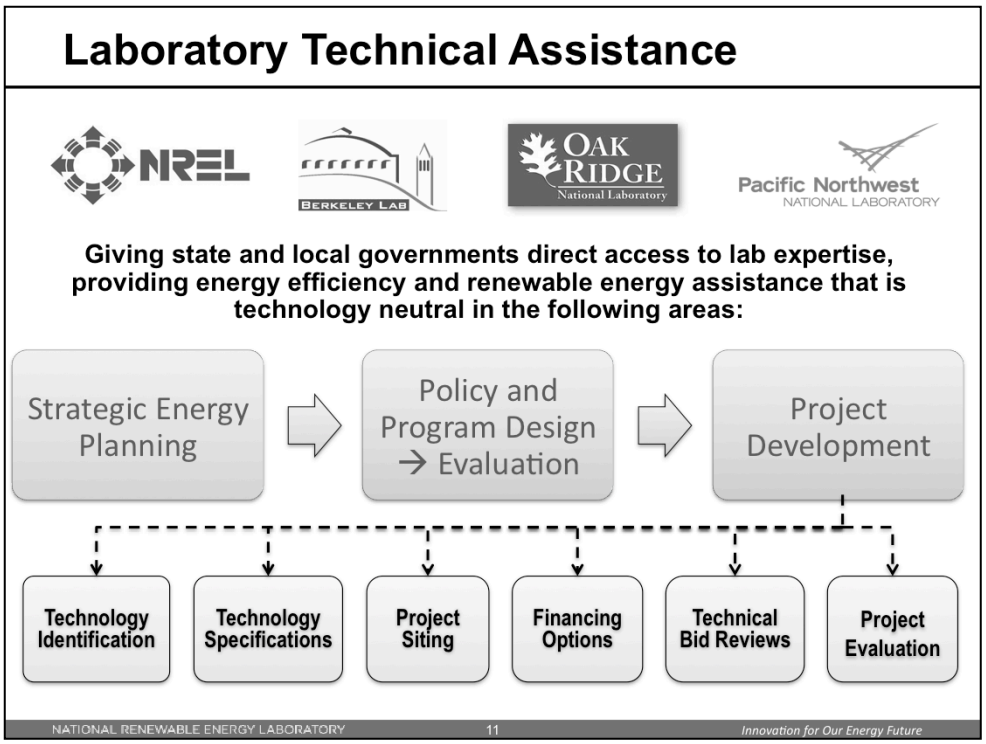
TAP offers the opportunity to connect with a broad and diverse network of technical experts at no cost. Providers include representatives from DOE's National Laboratories (like Merrian Fuller from Lawrence Berkeley in California who is one of our speakers here today), non-profits, stakeholder organizations, and for-profit consulting firms.



These technical assistance providers can provide short-term,unbiased expertise in:

- Energy efficiency and renewable energy technologies
- Program design and implementation
- Financing
- Performance contracting
- State and local capacity building

In addition to providing one-on-one assistance, we are available to work with grantees at no cost to facilitate peer-to-peer matching, workshops, and trainings.



LTAP intro slide defining our areas of expertise

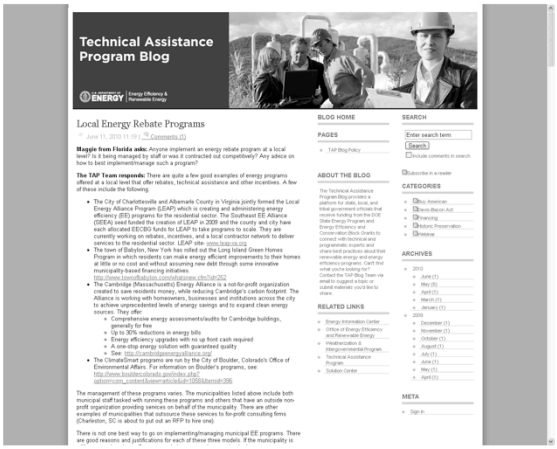
The TAP Blog

Access the TAP Blog
http://www.eereblogs.energy.gov/tap/

Ask questions of webinar presenters, enter comments about the presentation topic, and share your thoughts with others.

Connect with technical and programmatic experts

Share best practices about your renewable energy and energy efficiency programs.



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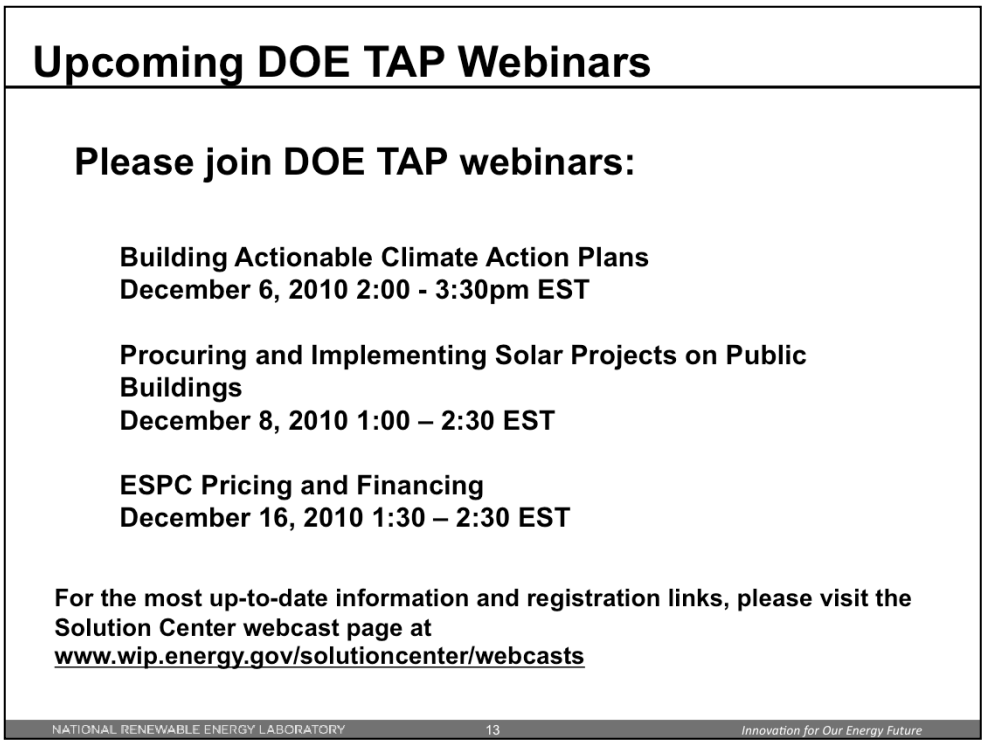
We also encourage you to utilize the TAP Blog, a platform that allows states, cities, counties, and tribes to connect with technical and program experts and share best practices.

The Blog is updated with a new Energy Efficiency or Renewable Energy topic on a bi-weekly basis. We encourage you to utilize the blog to ask questions of our topical experts, share your success stories, best practices or lessons learned, and interact with your peers.



Next available is tomorrow from 1:30 to 2:30 EST on Energy Service Performance Contracting (ESPC) mechanisms. The number of webinars being offered will ramp back up after the holidays in the new year.

Accessing DOE TAP Resources

We encourage you to:

1) Explore our online resources via the Solution Center

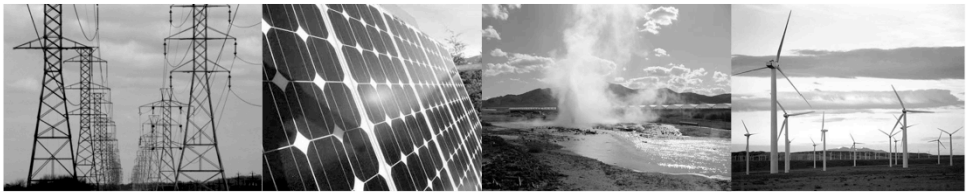
2) Submit a request via the Technical Assistance Center

3) Ask questions via our call center at 1-877-337-3827 or email us at solutioncenter@ee.doe.gov

Requests for direct assistance can be submitted online via the Technical Assistance Center (https://tac.eecleanenergy.org/) or by calling 1-877-EERE-TAP (1-877-337-3827). Once a request has been submitted it will be evaluated to determine the level and type of assistance TAP will provide.

Why Renewable Energy?

- ✓ Existing infrastructure
- ✓ Increase economic value of the property
- ✓ Reduce the stress on greenfields
- ✓ Improved public support
- ✓ Provide clean energy for use on-site, local use, and/or to utility grid
- ✓ Create local jobs



Existing infrastructure

• Many brownfields (landfill sites or grayfields) are located near existing infrastructure – close to transmission lines and roads

Increase economic value for the property

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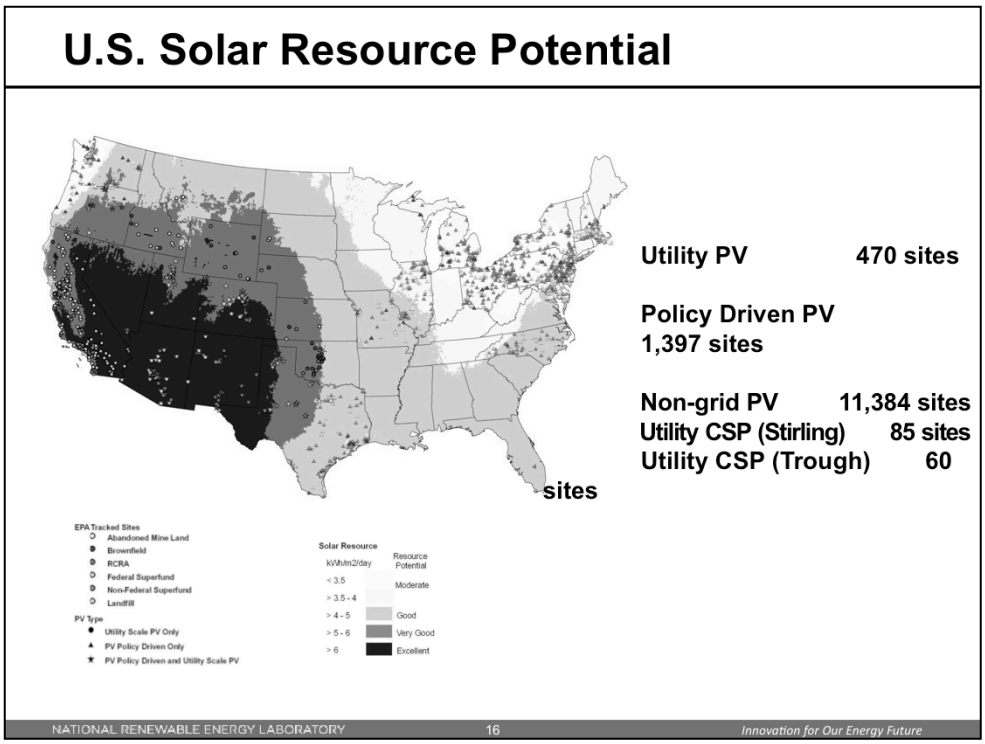
Reduce the stress on greenfields

Improved public support

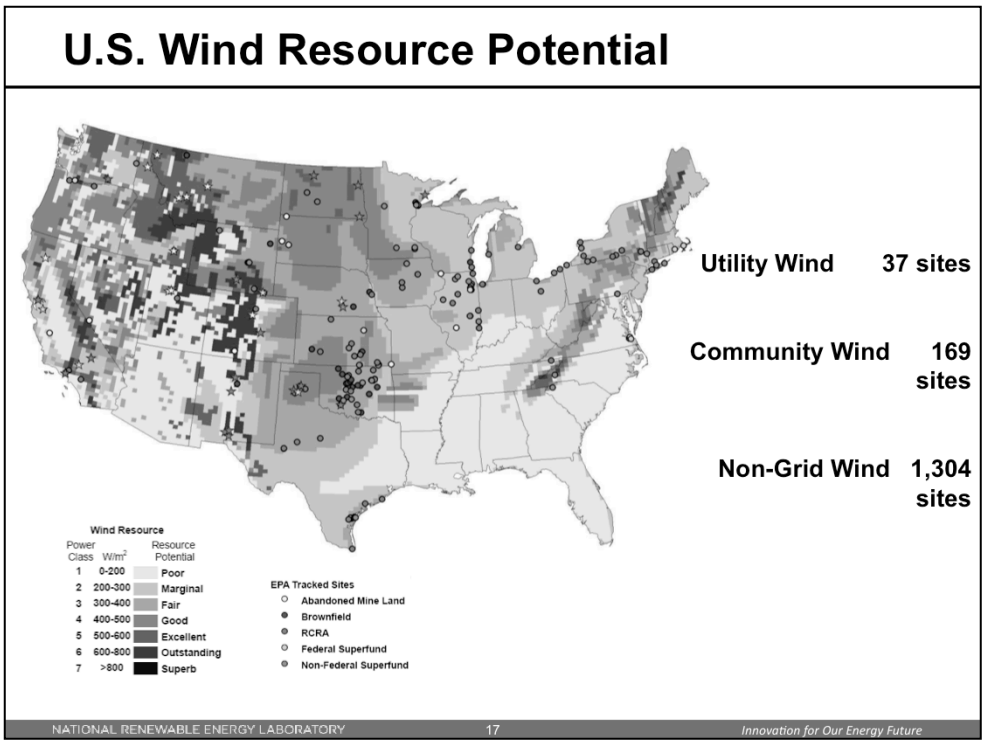
Provide clean energy for use on-site, locally, and/or to utility grid

Create local jobs



Utility-scale PV – capacity of ____kW or greater

Policy driven – indicates that the state has a Renewable Portfolio Standard or voluntary renewable target that includes a solar set aside or a solar multiplier which...



Utility-scale wind – typically refers to wind of 100kW capacity or greater

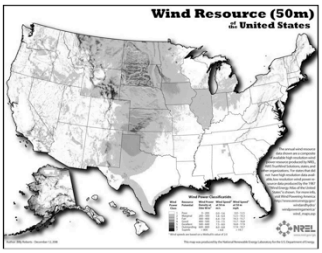
Community wind – typically refers to wind with less than 100kW in capacity

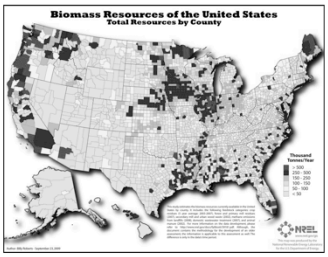
Off-grid (or non-grid tied wind) – indicates wind that can be installed without connecting to the local electric grid. This means it can be built in more remote areas that are not close to transmission lines and infrastructure.

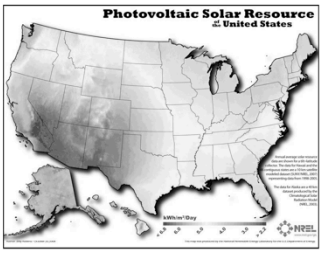
Wind is very location dependent – not necessarily a viable option for contaminated

Land sites located in urban areas.

Renewable Energy Resource Maps







Renewable Resource Maps can be found at:
http://www.nrel.gov/renewable_resources/

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All resource maps can be found at http://www.nrel.gov/renewable_resources/

NREL's Renewable Resource Maps and Data includes:

Dynamic Maps and GIS Data

Measurement and Instrument Data Center

Renewable Resource Data Center

Solar Radiation Research

Renewable Energy Considerations: Site

RE in open space

- Ground-mounted PV
- Wind turbines
- Central plants: biomass, solar, thermal, geothermal

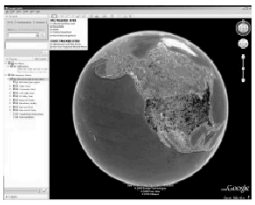
RE for buildings

- Rooftop solar PV
- Solar hot water
- Solar ventilation preheat
- Daylighting

Preliminary Screening: Resource Availability

Free online resource assessment tools

EPA Renewable Energy Interactive Mapping Tool
- Allows user to search by renewable energy type and/or contaminated land type, and site location
- http://www.epa.gov/oswercpa/mapping_tool.htm



In My Back Yard (IMBY)
- Web-based software tool that estimates electricity produced by a photovoltaic array and wind turbines
- http://www.nrel.gov/eis/imby/

RETScreen
- RE and energy efficiency technologies
- Training opportunities
- www.retscreen.net/ang/home.php

Other tools available from NREL:
www.nrel.gov/analysis/analysis_tools.html

Level 1 Considerations: Solar PV

1. On the "Built Environment" where unshaded–size to capacity (pipes & wires) and load (kWh & thermal)
   a) On roofs of existing buildings that are less than 5 years old and can accept added load. Reduces solar load on building. NEPA categorical exclusion.
   b) On ALL new buildings –all new buildings should be "solar ready", see http://www.nrel.gov/docs/fy10osti/46078.pdf
   c) Over parking areas, pedestrian paths, etc. –energy generation, dual purpose, and nice amenity.
2. On compromised lands such as landfills, brownfields, abandoned mine sites. Saves green fields for nature.
3. IF installed on green fields minimize site disturbance, plant native low height vegetation as needed.

Include other site screening criteria: distance to transmission and roads, slope, future plans/use of the site.

Level 1 Considerations: Wind

- Turbines need to stand out
- Wind resource far more site-specific than solar
- For larger turbines, 30 meters or taller meteorological (MET) towers erected to determine site's resource
- MET studies often one year or longer

NREL's involvement in siting renewables on contaminated lands

Talk generally about NREL's work in this area –
As Lura mentioned, NREL has partnered with EPA on RE-Powering America's Lands to assess the feasibility of redeveloping several contaminated land sites with renewables...

NREL has also been providing direct assistance to states, cities and counties in need of assistance in identifying their high potential contaminated land sites and assessing which renewable technology might be the best fit.

A couple recent examples of TAP's involvement in siting renewables
On contaminated land sites include: Richmond, CA, Puerto Rico, Carroll County Maryland, and Templeton Gap Landfill in El Paso County, CO.

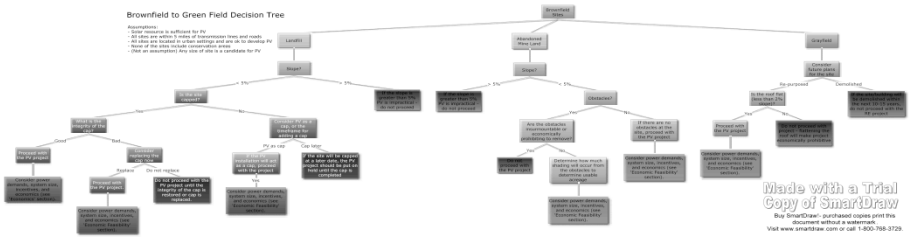
Richmond, CA

Requestor: City of Richmond in coordination with EPA R9

Site: Richmond's entire inventory of contaminated land sites

Request: Assess the barriers to renewable energy overlaid with factors for selecting the best sites for redevelopment with renewables.

Deliverable: What began as a white-paper report, turned into a decision tree tool and guidance on determining high potential sites for renewables



Puerto Rico

Requestor:	Puerto Rico Environmental Quality Board
Site:	Six landfill sites in Puerto Rico
Request:	NREL to assess the potential of 6 landfill sites for solar power generation and prepare a feasibility study
Deliverable:	An on-site visit to assess each site, followed by feasibility studies for each of the six landfills in Puerto Rico. The studies describe the landfills, their potential for solar power renewable energy generation and the economics associated with solar generation at each landfill.

Carroll County, MD

Requestor: Carroll County Government

Site: Two closed landfill sites in Carroll County, MD

Request: Assist the County's efforts to install solar on 2 closed landfills in Carroll County, MD

Deliverable: Solar resource assessment and mapping, estimate usable acreage, economic feasibility assessment (consider federal/state incentives, electricity rates, and financing options)

Templeton Gap Landfill, CO

Requestor:	The Colorado Department of Public Health & Environment in collaboration with Colorado Brownfields Foundation
Site:	A closed 43 acre landfill located within a business park at edge of Colorado Springs in El Paso County.
Request:	NREL assistance with design and implementation support through financial modeling of renewable energy technology development on a closed landfill in El Paso County, Colorado.
Deliverable:	NREL to develop a financial model for redeveloping the Templeton Gap Landfill site using one or more renewable energy technologies.

CDPHE is working in collaboration with the Colorado Brownfields Foundation (CBF) to create a business model for developing renewable energy at the site with the intent of providing locally generated renewable energy and ultimately creating a revenue stream to run the pollution remediation system (already existing on-site). The financial models provided by NREL will be included in a business opportunity prospectus to be presented to potential investors and developers.

How to access NREL directly

State and local agencies/officials can submit a TA request directly.

EPA regional offices can also utilize TAP through cooperation with state or local offices and can request a TAP on behalf of the state or locality.

To apply email the following info to tech.assist@nrel.gov

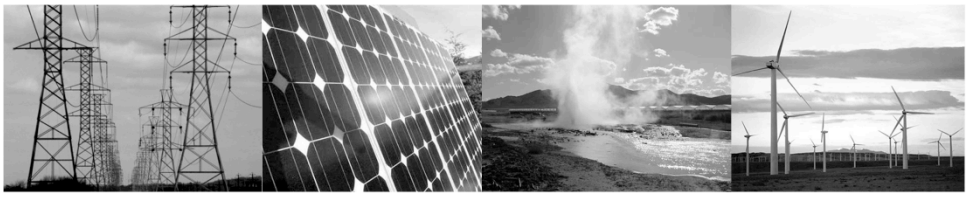
- Brief request overview
- Contact in community
- Timeline requested
- Lab expert requested (optional)

www.nrel.gov/state_local/

Thank You!

Courtney Welch
(303) 275-4381
Courtney.Welch@nrel.gov

Website: www.nrel.gov/state_local/
TA Email: tech.assist@nrel.gov



•Reviewing Request for Proposals (RFPs) for specific energy management programs, baseline assessments, and energy savings performance contracting (ESPCs) issued by local governments
• Designing, planning and facilitating workshops addressing strategic energy planning and energy efficiency conservation strategies
• Providing advice on green building technologies and building code development
• Providing renewable energy resource assessments
• Assisting and facilitating public hearings, surveys/input, outreach and education
• Providing technology- or policy-specific testimony, conference presentations, or participating in panel discussions
• Developing program- or technology-focused advisory boards or steering committees
• Providing policy trends, policy models, success stories and case studies

Resources & Feedback

- To view a complete list of resources for this seminar, please visit the **Additional Resources**
- Please complete the **Feedback Form** to help ensure events like this are offered in the future

Need confirmation of your participation today?

Fill out the feedback form and check box for confirmation email.

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