

Sustainability for State Park/Public Lands Conference Call ***Renewable Energy for Parks***

Call in details: April 26th at 3:00 p.m. ET (2:00 p.m. CT, 1:00 p.m. MT, noon PT).
The call was scheduled to last for one hour - actually lasted 75 min.

Call in number - not operator assisted: (641) 985-8000 access code: 664505#

Agenda:

- ~ Welcome (5 min.)
- ~ Introductions - everyone (15 min.)
- ~ Renewable Energy ND Parks (20 min.)
 - [Solar/Geothermal/E2 – Kim Christianson](#)
- ~ Renewable Energy Open Discussion (25 Min.)
- ~ Questions/Next Steps (10 min.)

Conference call notes:

INTRODUCTIONS

During introductions tell us your interest in renewable energy for public lands and parks and provide information on resources you could share relative to the topic.

Karen Edlin, MI DEQ - several years ago received an EPA grant for sustainability in MI state and local parks. Renewable energy in one of the areas we are looking at - last year one park installed a solar hot water heater at a shower/toilet building and there is interest in small wind energy opportunities. Able to share rough design drawings, the RFP, estimated payback numbers, and information on the type of technology used for the solar hot water heater.

David Goggins, MO DNR - unable to take part in call but wanted to share information from his state, he has said that all new construction has ground-source heat pumps for heating and cooling; they're using solar powered vent fans in their latrines/vault toilets, are switching to solar lighting and have conducted solar cooking demonstrations for visitors - he has a fact sheet on the vent fans that he could share.

Sue Dalbey, MT Parks and Recreation - don't have sustainable resources/practices as formal programs - do have some solar lighting, composting toilets on remote river sites (limited success). Interested in what others are doing.

Elizabeth Bird/Kathy Boul, Peaks to Prairies P2 Center - publishing green "parks toolkit" for developing environmental management systems for parks/carnivals - not

a lot on energy/renewables may want to add more. Will be putting toolkit on web - May. Producing CD/textbooks currently for those that want to order them.

Kent Bellend, ND DoH - working with Marie Zanowick on assessments at 8 state parks, working on sharing information, currently working on a toolkit to share with park educational program directors for their programs that they put on in the evenings - apply/P2 efforts to visitors.

Marie Zanowick, EPA 8P-P3T- work a lot with NPS - some have sustainable energy desires (not necessarily plans).

Steve Buttorworth from NPS couldn't take part in call but wanted to share a website on photovoltaic systems in the national parks - the resource list has been updated with this resource which is:

National Park Service Solar Meter Site

http://www.bpa.gov/Energy/N/Tech/EE MeteringData/Federal/Federal.cfm?Group=Federal_NPS

Billie-Gwen Russell, WA SSC - some parks doing limited solar applications (specifically island areas) however main focus on conservation/efficiencies. Have found that solar and wind equipment purchases are often time consuming/disappointing. Working on draft sustainability policy/companion piece (Integrated Sustainability Plan) - park sustainability plan (simple checklist with many appendices) - make sustainability easy for rangers, but have everyone do the same thing.

Kim Christianson, ND Dept of Commerce (Energy Office) - state energy office doing work with state parks on renewables and efficiency.

Erin Long/Andy Scanlon/Jennie Johansson, CO State Parks - working with the University of Colorado on report prepared by students on sustainable park practices from around the country (report attached to email - Sustainable Practices Report). State parks using some solar, 5-year strategic plan has goals for LEED standards for parks.

Kent Bullard, Channel Island National Parks - solar and wind on islands, biodiesel for five years, green lubricants.

Larry Solce, MI DNR (Mitchell State Park) - is researching geothermal use for visitor center and possible small wind opportunities for future use at his park.

RENEWABLE ENERGY ND PARKS/OPEN DISCUSSION

Kim Christianson, ND Department of Commerce, State Energy Office

Know all states have energy offices that work with renewable and energy efficiency programs - check here first for possible energy resources for parks.

ND not a sophisticated program, but a long-term working relationship exists. It helps that offices for Energy and Parks are located in the same building and floor. We combine efforts to include energy efficiency or renewables into all new construction plans.

Projects & activities in ND, and office resources provided

ND Energy Office started working with parks and recreation in 1989. Worked with then parks director to offer services for energy audits at all park facilities - evaluated opportunities for energy improvements (efficiencies/conservation). We conducted audits at nearly all of their facilities. As a follow-up offered funding to implement energy conservation measures with short pay-back (<4 years) like lighting and heating system upgrades.

More recently - 2 years ago developed agreement around new administrative building/visitor center at a more popular state park. Explored geothermal heat pump system (ground source), better insulation, high-efficiency lighting etc. Offered to look at/assist with incremental difference in costs from using regular heating/cooling systems with a higher front-end heat pump system (same with other systems). As long as a project had a payback period of 10 yrs or less, they agreed to fund it (had resources at time to fund all incremental differences). Completed all projects, they have been extremely pleased with results. Now intend that any new construction (and expansion) projects if at all possible will use ground-source heat pump systems (since it had a dramatic effect on their utility bills).

Also have done:

~solar lighting projects at 2 state parks. Jury out on value - did as demonstration project. Economics questionable since they had access to low cost energy.

~Solar water pumping system at Cross Ranch State Park provides water to buffalo herd. This project worked out very well.

They have an active State Facilities Program - parks have taken advantage of opportunities for alternative fueled vehicles. At three state parks provided matching dollars to buy electric vehicles. Small, niche market electric vehicles that have been modified, added box on back, to use to go out in parks, e.g. to

campgrounds. Used instead of large pickups. Significant cost savings, very quiet, have worked very well. Have even provided electric bicycles to one or two parks.

Currently working on grant awards for geothermal, ground source heat pump systems and other efficiency measures to expand one park's visitor center, another park's new center. Sold on ground source heat pumps for use in ND.

Energy Office has an energy engineer on staff to help. If parks have particular concern about a facility or want to look at excessive energy use, engineer provides analysis. Everyone should contact their own state energy offices - they may have federal funds, special funds that states have to be used on these types of projects, system benefits charges for efficiencies/renewables.

ZANOWICK: EPA did P2 assessments with parks in ND. Heard energy audits in 80's were beneficial now want another one. Sacagawea State Park administrator had been skeptical about heat pump systems, didn't want it in the beginning, now extremely enthusiastic, completely sold on technology.

CHRISTIANSON: Typical response - a lot of initial resistance/much higher up front cost. Park buildings are in service for long periods of time - when look at operational and maintenance costs and utility costs makes a lot of sense.

BELLAND: School systems in ND starting to make same leap based on experience at parks.

RUSSELL: WA no longer has energy office (moved to extension service which has focused mission) - folks there now need to look to sole utility company for help with energy audits.

CHRISTIANSON: Every state has a State Energy Program funded by DOE, that should be providing some kind of service like this.

EDLIN: MI just starting to do energy audits with parks. In general state wants to be leader in renewable energy but have long way to go. Department of Transportation is taking the lead on renewable energy - kiosks, signs, etc.

ND - want to use Sacagawea facility as a public education opportunity with poster boards etc. Work with many different state agencies; e.g. with colleges and universities. Work with them on education outreach, finding cost effective improvements. Can support small projects, but if big, do performance contracting.

Where to start with Ground-source heat pumps? Talk with manufacturers; closed-loop may be easier, visit the Geothermal Heat Pump Consortium at (<http://geoexchange.org/>)

BULLARD: Channel Islands - windmills not robust.

EDLIN: a lot of opposition in MI to windmill line of site obstruction.

BULLARD: Can do off-site with grid-connect payback. The NPS is looking at doing this for a large scale solar project with a naval base where the energy credit would come back to the park. Should still look to incorporate some type of small on-site renewable energy demonstration project for the educational opportunity it provides.

GENERAL DISCUSSION: Two schools of thought on solar power - think solar if you have to run line over 2,000 ft vs. put solar underneath utility lines (solar just because you can).

SCANLON: Anyone using solar shingles? Company in Auburn Hills MI makes a whole line of them, so can shingle whole roof (thus no solar panels).

RUSSELL: Presentation by Steve Buttorworth with NPS has information with solar shingles (presentation attached to email - Making Magic Happen).

ZANOWICK: Recently took part in a tour at NREL, saw demonstration project with solar shingles. Solar shingles have lots of advantages: look the same, designed so that they could be applied using the same techniques (roofers were familiar with design), much less efficient than solar panels but cost much less. NREL recommends considering all the factors in deciding for particular site.

BULLARD: Different types of roofing materials - amorphous (flexible) is only 40-50% efficient per sq foot as crystalline (slate). To find out what type will work best/cost payback you need to evaluate every aspect (replacing existing roof members, re-roofing, etc.). Primarily uses end of rack-mounting on top of roofs.

CHRISTIANSON: There is a website for the electric vehicles mentioned earlier <http://www.gemcar.com/> Average cost: \$8,000 - \$10,000. Manufactured in ND, by Daimler/Chrysler.

Caution with electric vehicles: need to be aware of the big picture. Sometimes recharging can use more energy than the vehicle itself.

RUSSELL: Last week ASHRAE did a broadcast on sustainable practices, EPA Energy program presented. Noted CREST and DESIR on resource list, both provide good resources on renewable energy. ASHRAE = heating and ventilation leaders. Excellent 4-hour web cast - you can buy a DVD of the web cast at this site:

American Society of Heating, Refrigerating and Air-Conditioning Engineers
<http://www.ashrae.org/greenbuildingsbroadcast>

QUESTIONS/NEXT STEPS

~ NEXT CALL: July 26th

The call will focus on Peaks to Prairies new toolkit, also WA and ND guidebooks. The call will provide an opportunity for everyone to share available environmental review and management tools for parks.

~ Potential Future Topics

Recycling/waste reduction

Green Buildings

~ EPA Region 5 funds used to plan/research calls will run out in September. Thus the calls will be coming to a close unless someone else is able to continue them.