

## 5.0 DRY LAKE SOLAR ENERGY ZONE

>>C. Humphrey: Next on our agenda, Mike Dwyer is going to take you through a real, live example. He's going to give you example on how to tackle regional mitigation. We've heard about the law and policy, Mike. You worked on one of the first regional mitigation projects in the BLM. So tell us about it.

>> M. Dwyer: thanks, Cathy. It implemented the policy that is used here today. I use the qualifier because the development of the regional mitigation strategy for the Dry Lake Solar Energy Zone occurred simultaneously with the development of the Regional Mitigation Manual, but the two were not formally connected. They were, however, very much informally connected. That is, the two project teams enjoyed a frequent and healthy dialogue. As a result, the Dry Lake Project made significant use of interim products that went into the making of this manual.

While we're still decompressing from the rarefied air of the project and have not fully fleshed out our lessons learned, I hope that this presentation provides some insight into both the opportunities and challenges associated with executing the regional mitigation program at the project level.

>> C. Humphrey: Mike, if the idea for developing an offsite mitigation strategy for the Dry Lake Solar Energy Zone didn't come from the offsite mitigation manual, where did it come from?

>> M. Dwyer: We imposed it on ourselves, Cathy. It came from the decision to implement a solar energy development program in the BLM. As described in the Solar Programmatic Environmental Impact Statement last year. Among other things, the decision established 17 Solar Energy Zones in the six southwestern states by amending the applicable resource management plans. The decision directed that for the impacts of solar development that cannot be avoided or minimized, the BLM consider implementing offsite mitigation. And that a regional mitigation plan be developed as the means to figure out what might be done.

One of the solar energy zones, Dry Lake, in southern Nevada was selected to serve as a pilot for the development of such a strategy. Before I get into the Dry Lake project, let's take a quick look at the BLM mitigation hierarchy and examine how it was implemented for solar development.

As depicted here, the idea is to first avoid impacts and where this is not possible, to minimize impacts by implementing things like best management practices, as Jim pointed out. The impacts that remain after avoidance and minimization are referred to as unavoidable impacts. The first tier of the hierarchy was implemented for solar development on public lands by the establishment of the Solar Energy Zones. These zones are areas found to have high potential for solar but with relatively few conflicts. That is, we avoided areas with significant and incompatible resource values.

The second tier was also addressed in the solar programmatic EIS. Chapter 5 provided a robust suite of design features that could minimize the impacts of solar development onsite. The Solar Programmatic Environmental Impact Statement includes a chapter for each of the 17 zones assessing the site-specific impacts and recommending a suite of design features specific to the impacts expected in each zone. So, the Solar Programmatic EIS provides a set of unavoidable

impacts that feed the process of developing a regional offsite mitigation strategy for solar energy development.

Now, let's take a look at how we developed a Regional Mitigation Strategy for Dry Lake. The Dry Lake Solar Energy Zone depicted here by the inverted red triangle is approximately 22 miles north and east of downtown Las Vegas. It is roughly nine square miles in size and is bordered on the southeast by Interstate 15 and the southwest by the Great Basin Highway. As Gordon discussed, it is in the eastern Mojave Desert and the vegetative community is almost entirely creosote bursage scrub.

As you can see in the photograph taken depicting by the yellow triangle, there are existing uses on and around the zone, including power lines, and natural gas fired power plants, and a natural gas pipeline, and an electrical substation, and a cement plant, and a bunch of roads and fences.

The area outlined in red has been designated a non-development area in the Solar Programmatic EIS because it contains major drainage channels within the Solar Energy Zone. Designating non-development areas within a SEZ is another way of implementing the hierarchy.

So if we were to develop this zone for utility-scale solar generation, what impact should we mitigate for? What should we do to compensate for the unavoidable impacts and where should we do it?

Presented here are the seven questions that form the outline of the Dry Lake Regional Mitigation Strategy. The first three questions pare down the universe of expected impacts found in the programmatic EIS to only the subset of unavoidable offsets. Questions 4 through 7 are about figuring out how and where to carry out offsite mitigation. How it will be funded and how success will be measured. Question 4 provides the bridge between the two groups of tasks.

>> C. Humphrey: So, Mike, earlier Gordon talked about a set of questions, eight questions or so. You're talking about some questions so can you take a minute and explain how the two are together?

>> M. Dwyer: Yeah, I think that would be a good idea. They really all come from the same process. Three of the questions are on both lists. And they're underlined in the next slide that's going to come up; as in, in common, between both the lists. The remaining questions on Gordon's list provide information that is helpful in deciding if an unavoidable warrant impacts mitigation. You see those as components of question number 3 on my list. I'll briefly describe each of these questions, how we answered each of these questions for the Dry Lake project.

Incidentally, the Solar Programmatic EIS directed the development of a strategy should provide the opportunity for stakeholder input. Accordingly, we convened several workshops and solicited comments on interim products over the life of the project. We had over 100 people representing a variety of interests [who] participated in some way over the course of this project. Stakeholders were involved at every step. They contributed expertise, creativity and opinion that made the final product better. I want to acknowledge the product you'll be introduced to here is as much their work as it is ours.

As I mentioned earlier, we started with the impacts specific to developing Dry Lake for utility-scale solar development, as analyzed in the Solar Programmatic EIS. At the time it was written, the authors didn't know what technology might be installed at Dry Lake but it was safe to assume that solar development can have a fairly drastic effect on the natural environment.

The two photos here of the Brightsource project on public land in the Las Vegas District illustrate the intensity of utility- scale solar development. Each tower—and there are 3 on this site—requires approximately 1 square mile of reflectors. I would like to draw your attention to what the ground looks like under the reflectors on the lower of the two photos. It is pretty much the complete removal of vegetation, soils, and even the topography itself, as this area is graded flat.

The initial unavoidable impacts were taken from the Solar Programmatic EIS and were reviewed and amended slightly by an interdisciplinary team at the local BLM office with firsthand knowledge of, and the most up-to-date information about, the resources found in Dry Lake. As you can see, we ended up with two lists of unavoidable impacts: those impacts that are definitely unavoidable and those impacts that *may* be unavoidable.

In the opinion of the interdisciplinary team, the impacts on the *maybe* list can be effectively minimized by the successful implementation of design features, but they recommended they be closely monitored to ensure they're effective. The other list, the *definite* list, was carried forward to the next step in this process. To move to the next and final subset of impacts—those that warrant offsite mitigation—they applied the criteria found in the BLM Mitigation Manual, including consideration of the potential effect of the unavoidable impacts on problematic regional trends and the role that the impacted resources play in the greater ecosystem, as Gordon described.

Listed here is the subset of unavoidable impacts that, according to the screening process, met the criteria for warranting offsite mitigation. There shouldn't be any surprises here but I do want to point out that we bundled the impacts to biological resources under the heading Ecosystem Services. Because our conceptual model helped us realize where ecosystems are concerned, the whole is more important than the sum of the parts.

By the way, this and the next few slides feature a few of the special status species found in the Dry Lake Solar Energy Zone. Once we have the impacts that warrant offsite mitigation, we're in a position to state what it is we're trying to achieve with offsite mitigation.

As you can see, on the next slide, these are regional-level goals. While this is the place where a mitigation ratio might appear in a plan (such as 2 acres restored for every 1 acre disturbed), we chose not to go down this path for a couple of reasons. First, the Dry Lake project area, as you saw in the slides I showed earlier, already experienced a good deal of disturbance from existing uses. Thus the condition of the landscape is already less than its full potential before any solar development ever occurs. Second, the team felt the focus should be on the *outcomes* rather than *outputs*. That is, the things that mitigation is meant to achieve in the region.

Articulating our regional mitigation goals led us directly to the Las Vegas Resource Management Plan to seek established management prescriptions for the impacted resources that seem to speak

to mitigation. I should also mention that the desert tortoise is listed as a threatened species under the Endangered Species Act. The Dry Lake SEZ is tortoise habitat but not critical habitat. There is a Habitat Conservation Plan in place for Clark County in which Dry Lake is located. An associated Section 7 [ESA] permit requires payment of a mitigation fee of \$810 per acre. The tortoise mitigation fees go toward the variety of activities aimed at sustaining the population in the County including habitat restoration and protection.

With our goal, our next step is to identify what actions we're going to take to achieve them, and where they're going to take place. Listed here are the criteria we use to rank a host of potential actions and sites. The list of potential actions and sites was nominated by both BLM staff and the public. The local BLM interdisciplinary team made the final call on the recommendation.

The place that rose to the top of the nominated locations was the Gold Butte Area of Critical Environmental Concern, or ACEC, in southeastern Nevada. It is a 350,000 acre ACEC designated in 1998 by the decision to implement the Las Vegas RMP. It is located approximately 40 miles due east of Dry Lake and is bordered on two sides by the Lake Mead National Recreation Area managed by the National Park Service. It was designated an ACEC for a variety of outstanding resource values including desert tortoise habitat, wildlife corridors, scenic values and cultural resources.

Why did it rise to the top? The short answer is that it best met the criteria found in the Regional Mitigation Manual. Let me highlight a few of the most significant of these.

- First, it is in the same state, county and ecological region as the Dry Lake Solar Energy Zone.
- Second, there is significant opportunity for restoration thanks to recent wildfires and also to proliferation of roads that have been identified in a BLM transportation plan for closure and restoration.
- Third, restoration and protection are consistent with the management prescriptions for the areas specified in the Las Vegas RMP.
- Fourth, analysis in the Mojave Rapid Ecoregional Assessment and also by the National Park Service indicate the vegetation and tortoise habitat will persist longer in the ACEC than in adjacent areas as a result of climate change.
- Fifth, the current level of funding is insufficient to accomplish either the needed restoration work or the protection of the area from further degradation. Particularly from unauthorized, off-road recreation.
- Finally, the mitigation actions will benefit multiple resources, for example, the significant culture resources found in the Gold Butte ACEC. As you might expect, the recommended mitigation actions are restoration of disturbed areas and protection of resources in the ACEC from further degradation. I'll give you just a minute or two to read these recommendations before we move on.

>> C. Humphrey: You know, Mike, while they're looking at those, you mentioned that the current level of funding is insufficient; and by looking at these actions, they seem kind of ambitious. So how would you fund this work?

>> M. Dwyer: The team recommended charging a fee to fund offsite mitigation actions. However, precisely how this fee is calculated is one unfinished piece of the puzzle and it is complicated. For

example, for Dry Lake, the cost of restoring and protecting an acre of the creosote bursage community in the eastern Mojave Desert can be an order of magnitude higher than the value of the land. So if we build a fee around the cost of offsite mitigation, there is potential to create *disincentive* for solar—the opposite of what the renewable program is trying to achieve. If we go the other way and build a fee around the appraised value of the land to be developed, we'll end up restoring fewer acres than are disturbed.

Another consideration is that Dry Lake is subject to a Habitat Conservation Plan for the desert tortoise. We want to make certain that we're not only measuring but measuring the right things. As Gordon mentioned, these include things like:

- Did we accurately predict the impacts?
- Did the design features minimize the impacts as predicted?
- Did the offsite mitigation actions achieve their goals? and
- How did our efforts affect regional trends?

Finally, we have to have a strategy if our measurements indicate we're not achieving desired results in adaptive management plans. This project provides an opportunity to take adaptive management to a new level by turning our conceptual model into a decision support model and using it as a frame of reference for advancing our understanding of the ecosystem and for assessing the costs and benefits of various alternatives. This is work that remains to be done. That is a very quick overview of the strategy and the process. The internal draft of the Dry Lake Strategy will be published to the web in the next few days.

>> C. Humphrey: Okay, so we posted that internal report to a Google site. I have a NEPA Training Google site. Only [Department of the] Interior employees can get to it. We'll have to figure out how to distribute that link. I think we might send an e-mail out. If you want a link to the site, just let me know and I'll e-mail it to you. Because we just got that figured out yesterday. So we'll have that on there. And I encourage you to have a look at it. It sounds really great to me.

So Gordon, you worked on this project for quite a while. But do you have some observations from it? Gordon -- Where did Gordon come from?

>> M. Dwyer: The Dry Lake Regional Mitigation Strategy was developed in response to an internal stimulus, that is, the BLM decided to develop this strategy to get our act together on what offsite mitigation might look like for the Dry Lake Solar Energy Zone before we initiate leasing. But this created a couple of conditions that might not be typical of other programs -- programs other than solar energy. For example, we started with the completed EIS that had identified impacts and design features. This allowed us to start already knowing the unavoidable impacts.

Many other proposed projects that may warrant offsite mitigation will not have this luxury. In these situations, it is likely that developing a regional mitigation strategy would be best accomplished as a part of the NEPA process. Because development of this strategy was not a NEPA process, the final process is a recommendation only and if it is adopted by the authorized officer, it will have to be incorporated with the NEPA that will be carried out to support leasing.

Another observation is that from time-to-time throughout the project, as Jim pointed out, we had to remind ourselves and our stakeholders that we're not required to mitigate all of the unavoidable impacts. The key questions are which impacts and how and where we'll compensate for them.

Another observation is that we found the regional perspective refreshing and useful. Taking a broad view of problematic regional trends gave us a new way to look at cumulative impacts—examining them from an *outcome* perspective versus an *output* perspective. We still have some thinking to do to get more quantitative about how we do this but even the qualitative assessment of regional trends helped us move from unavoidable impacts to those that warrant offsite mitigation. In a similar way, using the conceptual model that Gordon showed us helped us visualize the interrelationships between individual resources and ecological services, and helped us see that we can't parse mitigation of resources that play critical roles in a system and expect the results to be effective.

Regarding the mitigation fee, the challenge is to come up with one that supplies the resources necessary to carry out effective offsite mitigation but is, at the same time, sensitive to market forces so that it does not discourage exactly what we're trying to encourage.

Finally, regarding the stakeholders who participate in the project, while there were many entities involved, we did have two large groups of stakeholders: the conservation interests and the solar industry interests. The conservation groups generally were concerned that whatever and wherever we carried out offsite mitigation, that the final investment would be durable and additive. Despite our best efforts to convince them otherwise, they were not entirely comfortable that the recommended actions in the ACEC were either. Industry on the other hand was all about the bottom line uncertainty. They reminded us frequently the fee had to be something the industry could bear and that they shouldn't be the only public land users required to pay it.

This brings us back to the BLM Manual and the question of how it might be applied across a spectrum of multiple uses. That seems to be a good segue to opening up the discussion to everyone.

>> C. Humphrey: Thanks, Mike. I'm really glad you talked about the stakeholders. I think -- I imagine that involving them throughout this process made Dry Lake a lot more successful. I think even though you said that your team and Jim's team were loosely connected, I'm sure it was really helpful for both of your teams to be working on these two things at the same time.

All right, one more thing, is it okay if people contact you with questions or comments about this or if they want to know more?

>> M. Dwyer: Sure, of course. Please, you can e-mail me at [Mdwyer@blm.gov](mailto:Mdwyer@blm.gov) or call me at 702-515-5186.