Meeting Summary| October 19-20, 2009
Altamont Scientific Review Committee
Prepared by the Center for Collaborative Policy
Reviewed and Approved by the SRC

Key Outcomes

Baseline Defined in Settlement Agreement

In response to an inquiry from some of the settling parties, the Scientific Review Committee affirmed (as it has on other occasions over the past three years) that it does not think the "1300 avian fatalities" settlement baseline is appropriate for measuring a 50% reduction, as required in the Settlement Agreement. Some reasons for this are that 1300 was for all raptors while the current study focuses on 4 focal species, and the baseline study used a different methodology for calculating mortality than the current study. Lastly, 1300 was the upper end of a range of estimates in the study at that time, not a point estimate. A more suitable baseline would be calculated using the existing analytical approach to compare the current study to the baseline study, analyzing by operator group and summing to an Altamont-wide estimate. The analysis would also explore comparing the first two years of the current study to the last two years that will be limited due to the limited number of years available for analysis. All analyses would benefit from bird use data to help understand inter-annual variation in mortality rates, and to provide context for the mortality numbers.

Winter Shutdown

The SRC concurred with the companies' request and Monitoring Team recommendation to shut down the turbines simultaneously for this winter shutdown. Previously, the wind companies phased the shutdown to coordinate with Monitoring Team searches. This year, the companies would shut down turbines nearly simultaneously on November 1. The SRC strongly recommended that the Monitoring Team attempt to maximize the number of searches on and around November 1. Reactivation will also occur simultaneously to the degree possible, maximizing Monitoring Team searches on and around that date.

Current Monitoring Program

The SRC recommends that the current monitoring program continue uninterrupted at least through the end of the seasonal shutdown in February 2010. During the December 2009 meeting, the SRC and the County, in consultation with the wind companies, will work to define the goals and objectives of monitoring beyond February 2010. The Monitoring Team will provide advice as needed.

Action Items & Meeting Follow-Up

Party	Due Date	Action
Shawn Smallwood	10/21	Share CEC multi-year data on rated capacity in the APWRA with Doug Leslie and Sandi Rivera
Wind companies	11/1	Peer-review CEC installed capacity data & develop memo to Alameda County on installed capacity information recently provided to Monitoring Team versus information provided to CEC: 1. Which data to use 2. How data was derived 3. Why there are any discrepancies between the two sets of data
SRC & other interested parties	12/2	Contemplate goals & objectives for future monitoring, which will be discussed at December 2-3 meeting
Wind companies	12/2	Provide information on any management actions or potential areas for repowering to inform monitoring program goals & objectives (i.e., are there certain geographic areas that should be monitored so that the impacts of pending management changes/mitigation measures can be measured)
Monitoring Team	11/17	Develop large raptor feather spot data curve & confer with SRC Subcommittee
Julie Yee	11/18	Draft memo on issue of using a combination of KB study feather spot & whole carcass curves
All parties	10/31	Review Monitoring Team database and provide feedback/recommended changes before database is frozen for purposes of draft monitoring report

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Meeting Account

Announcements

Sandra Rivera of Alameda County announced that the APWRA monitoring program will continue at the current level through February, to March 1.

Monitoring Team Presentation on Data Analyses

Related Documents:

- M39_APWRA String Characteristics Memo
- M40_October 2009 Data Analyses Presentation
- P129_Smallwood Search Interval Summaries Supplemental to M39 (10-14-09)
- P137_NextEra: Core Turbines Analysis (10-15-09)

Jesse Schwartz of the Monitoring Team acknowledged efforts by SRC members and the public to review and refine the database. Peer-review of the database for the purposes of the draft Monitoring Report will end at midnight October 31, and the data as of November 1 will be used for the report. Comments received after that date would be incorporated into data for later reports.

String Characteristics

Jesse Schwartz presented the analytical approach to defining and representing string characteristics and related searches, search intervals and fatalities. The Monitoring Team has created an appendix showing information for each string. Strings have been reviewed and classified as data-rich, -moderate or -poor for the purposes of comparisons between the baseline and current studies.

Public Questions

A member of the public asked if each string contains only one turbine type.

Jesse Schwartz said this is true most of the time, but not always.
He listed the following attributes that will be noted:

- The average kilowatt per string
- The total kilowatt per string
- Turbine types
- If part of the 500 turbines added to the current study in March 2007

SRC and Monitoring Team Discussion: Should Comparison to Baseline Analysis Be Limited to Strings with at Least One Year of Monitoring

Jesse Schwartz asked for feedback on the issue of whether there needs to be more than one year of data for a string to be analyzed.

SRC members said the important issue is representing the seasons. A fraction of a year might not be representative, given seasonal variation of bird use in the Altamont. A .95 fraction of the year could be kept, but anything at .9 or lower should not be analyzed. Looking at data on a per-year basis is important for estimating annual mortality, but the SRC advised against forcing the data to represent calendar years because the data did not naturally fit this schedule and arbitrarily omits valuable data; the SRC recommended representing years as bird years, e.g., October through September. A bird year needs to have four seasons represented. This would be important in relation to the question of comparing baseline to current study. When looking at interannual variation, data from some of the fractional years might be used. One SRC member said he recently defined contiguous searches in the baseline study as those occurring with less than a 120-day gap between them.

About 20% of baseline records do not cleanly cover a calendar year. The type of analysis suggested by some SRC members might be more challenging for the Monitoring Team, as in the past it has been done by scanning the search dates string by string to identify appropriate beginnings, endings and gaps in search periods.

SRC members suggested, rather than using the data-rich to data-poor categories, utilizing different categories:

1. NREL Core - surveyed for a long period in baseline, searched in both studies;
2. NREL - surveyed at least one year during baseline for four consecutive seasons;
3. CEC turbines - were surveyed two times during baseline study.

Use categories 1 and 2 in the comparison analysis. Include a table of results by season. When looking for interannual variation, first use strings with greater than one year of data.

SRC members also asked that the table on the initial page 6 of M39 be clarified that the term "poor" refers only in regards to data for answering certain questions.

During the discussion, a number of potential biases were mentioned. Mitigation measures were not applied equally amongst the wind turbines in the APWRA. For example, some strings may not have had any hazardous turbines removed. Some AES turbines are always shut down during the winter. It will be important to include those caveats in the Monitoring Report.

SRC Agreement: Criteria for Including Strings in the 50% Fatality Reduction Analysis

1. Length of monitoring is greater than or equal to one year's worth of contiguous data
2. That period spans at least each of all four seasons
3. At least six searches per bird year
4. Average search interval is 0-60 days

Operational Capacity

Installed Capacity Data from Wind Companies

Jesse Schwartz said the Monitoring Team has received great data from the wind companies for "installed capacity." The data is at the "operating group" level, including company, type of turbine and project name. The data would provide a conservative estimate. It would be helpful because there are 40 groups that are geographically, mechanically and logistically distinct. It would allow the Monitoring Team to, for example, expand Buena Vista mortality data only to Buena Vista turbines. There is no information for the baseline period, other than a snapshot of data for the baseline period, and a similar snapshot of data for the current study period.

One SRC member said the CEC reports on APWRA wind company annual capacity do not have the same data as that received by the Monitoring Team. The disparity increases over time, to perhaps a 20% difference. The Monitoring Team's data consistently shows lower capacity than the data submitted to the CEC. The CEC data has not become available for the years 2005, 2007, 2008 or 2009. They include monthly output data represented by company and by project.

Public Comment

Renee Culver of NextEra clarified that, for FPL turbines, installed capacity includes vacant towers, or any site that is not an empty address. Different companies may define the term differently. The criteria in reports submitted to the CEC are production and capacity. The data submitted to the Monitoring Team are the best estimates. She is not involved in the data collection for the CEC for her company.

Jim Hopper of AES said he developed the data for the Monitoring Team. He went back to gather information and went through it methodically. To his mind, the data for the Monitoring Team would be more accurate.

SRC members were concerned that the two different sources of data could produce different answers. They would like someone to determine the differences between the two sets of data, why there is a difference, and recommend the preferred data set for the Monitoring Team to use. They asked the wind companies to prepare a memo on the subject.

Holding Capacity Constant in Analysis

SRC members reaffirmed their previous recommendation to hold capacity constant in the analysis focused on testing whether and to what degree the number of fatalities changed in the APWRA, because of the high uncertainty about turbine operational status. The approach recommended was to divide by capacity based on turbine addresses and hold capacity constant. Such an approach would capture the effects of management measures, such as hazardous turbine removal. If the number of fatalities is normalized on a per-turbine or per-MW basis, the effect of hazardous turbine removal would be hidden in the comparison between monitoring periods. In a scenario with 100 turbines and 100 fatalities, followed by 70 turbines and 70 fatalities, measuring on a per turbine basis would not show the signal of reduced mortality. The Monitoring Team agreed to look at the analysis in both ways (i.e., holding capacity constant and per turbine or per MW basis).

Next Steps

- Shawn Smallwood in the next two days will share his CEC data on operational capacity with the Monitoring Team and Alameda County
- **Operation Capacity Memo from Companies to County, Monitoring Team and SRC by 11/1.** Issue: Companies submit power capacity to CEC annually; that data differs from data submitted to Monitoring Team for the analysis. Report to cover:
    1) Which data to use?
    2) How data derived?
    3) Why, if any discrepancy between this data and CEC.
    4) What are the discrepancies

Preliminary Analytical Results

Jesse Schwartz presented preliminary analytical results based on the data as of October 16 (see M40_October 2009 Data Analyses Presentation). He estimated the database now has an error rate of about ½-1%, which is good.

Key points and initial observations include:

- During the baseline study, searchers found about the same number of non-raptors as raptors. In the current study, searchers found a far greater number of non-raptors than raptors. In addition, far more feather spots have been found in the current study. One reason for this may be that a shorter search interval can result in more feather spots found.
- The Monitoring Team will circulate the unfiltered data set of fatalities by monitoring year per string for peer review. It may need to be circulated as an Excel or Access file.
- The data show that the fatality rate has definitely not decreased by 50%. However, with so many sources of variability and potential error in the data, it is hard to get a meaningful signal.
- The fatality rates are quite variable over time, and almost all are higher in the 2005-2008 period. One possible cause could be high bird use during the current study period.
- There is a clear signal looking at Diablo Winds turbines versus the rest of the APWRA during the current study. Adjusted carcasses per megawatt are .56, compared to 2.01 for non-Diablo Winds turbines. Feather spot numbers are similar. One could surmise that they are not sensitive to the influence of scavenger removal and are potentially not turbine related.
- The winter shutdown experiment did not show a statistically significant reduction in mortality for burrowing owls or red-tailed hawks.

SRC and Monitoring Team Discussion

Points raised by individuals during the discussion include:

- There was consensus to drop the filter excluding injured birds, so injured birds would be included in the analysis.

- It might make sense to exclude 1998 data from the analysis, the first year of the baseline study, as the methodology was just getting established and search intervals were much longer.
- Because WEST Inc. selected all very small and medium turbines, and a sample of the small turbines, one approach might be to conduct a stratified estimation. However, this would incorporate turbines not studied during baseline.
- One possible way to analyze winter shutdown is to compare the 2006-07 period with the 2008 period, rather than comparing baseline to current study. It's possible that birds were confused during the crossover study of 2006-07. Compare the off months versus the operating months. It may be worth drilling deeper into this winter shutdown data. Another possibility might be a matched pair analysis to isolate the impact of winter shutdown from hazardous turbine removal.
- The data shows a great deal of interannual variation. It is important to keep in mind that there isn't sufficient data to determine if a real trend is being seen or the results come from interannual variation, both for the baseline and current study periods. The data are being presented in a vacuum without bird use and other factors influencing interannual variation.
- According to a monitoring team member, it is interesting that, with all of the biases and complexities and ways of looking at the data, the same general answer results with respect to estimating a reduction in turbine-related mortality. It therefore may not make sense to drill down into the data anymore, as it likely will not provide different results. It's unclear how to fix the situation to provide results that a decision maker could use.

Analytical Discussion Continued

- P138 Yee October Simulation Update
- P121 Yee Simulations (9-10-09)
- P123 Yee PPT Presentation (9-22-09)

SRC Member Julie Yee presented her latest simulation results, with the aid of a PowerPoint presentation. They built on last month's simulations, with greater focus on carcasses that initially miss detection and are found in later searches. Under the current analytical protocol, when adjustment factors are applied to late detections, the fatality estimates become upward biased. This bias cancels out when both the baseline and current study periods experience the same bias. She hypothesized that the two periods do not experience the same bias, due to differences in the average length of search interval between the two study periods. The longer search interval in the baseline period allows for a smaller proportion of carcasses being available to be missed. Thus, the baseline study is upward biased to a lesser extent than the current survey study, and the calculated percent reduction in adjusted fatalities from baseline to current survey periods may be smaller than the actual reduction. One proposal is to reduce this bias by limiting the search interval in the comparison to 0-60 days. Since this strategy would introduce data gaps associated with the baseline data, she could perform further simulations which simulate gaps to determine how well this strategy might work. An alternative is to calculate the bias in regards to search interval length and adjust the final estimates for that. While she estimated that a 50% reduction would appear as 45%, because of the bias, that does not necessarily mean that a 10% reduction would appear as 5%.

SRC members suggested it would be worth doing, using the baseline and current study actual search intervals, even though the results may not be available for the Monitoring Team report. It will also be important to mention and caveat this bias in the Monitoring Report. It would also be valuable to publish the simulation approach. Jesse Schwartz of the Monitoring Team said the approach could be extremely useful in designing future monitoring at Altamont or elsewhere.

Public Comment

Emre Ergas of NextEra said he would not at this point make the assumption that the APWRA has or has not reached the 50% mortality reduction.

Feather Spots

At the last meeting, SRC members reached consensus on the analytical approach to a number of adjustment factors. They were not able to reach consensus on an approach to analyzing feather spots.

Monitoring Team members listed the possible approaches that could be used:

- Separate carcass and feather spot numbers and percentages in the analysis and tables
- As suggested by Julie Yee to capture the uncertainty, present a bracketed range for feather spots, with the lower end representing the carcass removal curve without feather spots, and the upper end including carcasses and feather spots, adjusted from curves derived by both
- Choose a particular adjustment factor
- Present unadjusted feather spots
- Present adjusted feather spots
- Present both data results

The Monitoring Team's initial data show that many fewer feather spots were found in the baseline study, and feather spots seem to be found at higher percentages in certain geographical areas, possibly related to burrowing owl populations. In addition, the Diablo Winds data show feather spot fatality rates similar to other areas of the APWRA. Feather spots may be turbine-related through predation, or may not be.

One SRC member was concerned that the feather spot decay rate does not reflect the decay rate before the carcass became a feather spot, and urged that a combination of the carcass and feather spot curves be used. Another SRC member discussed a East Bay Regional Park District study documenting quick removal of some small-bodied carcasses as well as some feather piles being created by scavenging on site within two days of placement. Once these feather piles are created, scavengers will not remove the feathers, so the removal transitions to physical processes such as wind and rain. Conventional scavenger removal trials may not have simulated this problem of quick feather pile creation and they may not have regarded feather piles as detectable fatalities, so removal rates from conventional scavenger removal trials might be misapplied to at least some portion of the feather piles discovered by the Monitoring Team.

Other SRC members said they favored the curve obtained by the Monitoring Team in its report. They viewed the feather spot curves as already reflecting the full lifespan of the carcass.

SRC Agreement on Feather Spots

- Separate feather spots out from whole carcasses in the analysis
- Present feather spot raw numbers
- Present adjusted feather spot numbers.
- For small raptor feather spots, use rate set out in 48-Hour Search Interval study (M32_APWRA Draft 48-Hour Search Interval (KB) Study, June 2009).
- For large raptor feather spots, use existing records to develop a rate. This approach will be reviewed by the SRC Subcommittee.

SRC Recommendation on Using the Baseline Defined in the Settlement Agreement

Questions from settling wind companies, Audubon & County to the SRC:

1. SRC recommendation on suitability of settlement agreement baseline (1300)
2. If not, what is a more suitable baseline?
3. What time and resources would be needed to develop a consensus recommendation on the baseline?

1. SRC recommendation on suitability of Settlement Agreement baseline

SRC members reaffirmed their thoughts on the unsuitability of the 1300 baseline figure, and named several reasons for its weaknesses.

SRC Recommendation on Suitability of Baseline

The SRC does not think the "1300" settlement baseline is suitable to measure a 50% reduction. Among the reasons are:

- The 1300 number was defined in the Settlement Agreement as being for all raptors, while the current study focuses on 4 focal raptor species.
- The baseline study used a different methodology for calculating mortality.
- 1300 was the upper end of a range of estimates in the study at that time, not a point estimate.

2. If not, what is a more suitable baseline?

SRC members discussed a number of issues related to a suitable baseline comparison. These include:

- The Settlement Agreement asks for an Altamont-wide extrapolation from study data, however, monitoring data are lacking for the northern part of the APWRA. NREL and NREL core data are sufficient, but not representative of APWRA wide. It is possible that only sub-APWRA-wide estimates could be made.
- There is no good representation of APWRA wide turbines in the baseline study. If the baseline study was done in the part of the APWRA with lower fatality, it would be difficult to make an accurate comparison.

- There is uneven distribution and some regional differences in data, including distribution of bird species, turbine type, geographical variation and mitigation/management measures.
- There are great differences between the two study periods in average search intervals
- It will be important to design future monitoring to increase the power in the analysis.
- SRC members reaffirmed the importance of developing bird use data. If the fatality data show that there is no difference in the number of birds killed, it could be because bird abundance increased, masking a decrease in turbine-related mortality. It could be that the increase in urban development in the region has increased the number of birds coming into the APWRA area, as this is a good habitat area for birds. Bird use data would allow mortality numbers to be normalized for population fluctuations.
- The baseline fatality numbers show a declining trend through the baseline period, similar to the current study fatality numbers, even though there were no mitigation measures employed during the baseline study period.

Public Comment
Emre Ergas of NextEra said he would like to see the change in AIC turbines only. He also said he strongly supported using the first two years of the current study period and comparing them to the last two years, as most of the mitigation measures went into place in the last two years.

SRC Agreement on More Suitable Baseline Approaches:

- Using the existing analytical approach to compare the current study to the baseline study, analyzing by operator group, in geographically specific and narrow comparisons. The analysis would be aggregated by company, project, turbine type and turbine size. This information could then be summed to a near-Altamont-wide estimate. Questions asked would vary by group; certain questions would be asked in the baseline to current study comparison, while other questions might be asked for other analyses.
- Use a simulation or other method to compare the CEC baseline data to current study data, possibly by randomly picking current study searches that are closest to compare with the two baseline searches [One SRC member has since expressed concern about moving forward with this approach without further SRC discussion]. The CEC data include the northern APWRA area.
- Explore a comparison between years 1 & 2 of the current study and the last two years of the current study. This approach might lack sufficient years of data to reach conclusive results. It also would involve periods of time when various management and mitigation measures were in effect. It would be important to incorporate bird use data to provide a context for the numbers and trends.
- All analyses would benefit from bird use data to help understand inter-annual variation in fatality rates.

3. What time and resources would be needed to develop a consensus recommendation on the baseline?

It was agreed that these analyses could be conducted within the current schedule.

SRC Discussion: Monitoring in the Future

Sandra Rivera clarified that Alameda County is interested in hearing SRC thoughts on the future monitoring program during the interim time before implementation of the Conservation Plan, which is projected for 2012.

SRC Discussion on Current Monitoring

SRC members supported continuation of current monitoring. Points raised during the discussion include:

- The winter shutdown has not received a good test, and another year of data is needed to determine its effectiveness. The coming winter shutdown will be for 3.5 months.
- Another reason to continue monitoring is to gather enough data to provide a better baseline for future comparisons with repowering. The current study is developing data that are far superior to the baseline study.
- The QAQC study would be helpful to clarify the appropriate adjustment factors.
- There needs to be a good estimate of bird use, and a way to efficiently enter the data.
- Hazardous turbine removal will be important for repowering, as risky locations may be the same for repowering turbines.

During the December 2009 meeting, the SRC and the County, in consultation with the wind companies, will work to define the goals and objectives of monitoring beyond February 2010. The Monitoring Team will provide advice as needed.

2009-2010 Winter Shutdown

The wind companies have phased the shutdown to coordinate with Monitoring Team searches. SRC members were asked if it is necessary to do a phased shutdown, as there are high costs in coordination and logistics. A simultaneous shutdown would also avoid causing confusion for birds. However, there would be a loss in the precision of the data gathered, as searchers would not be able to conduct the clearing search before each monitored turbine is shut down. SRC members agreed to a simultaneous shutdown, provided that Monitoring Team attempts to maximize the amount of clearing searches conducted around the time of shutdown. Monitoring Team members said it will be challenging logistically to bring on people in only two weeks, but they will do the best they can. The aim would be to start with about half the turbines on November 1 and followed by the half of the turbines between a few days and a week afterwards.

Julie Yee said her Poisson regression approach might be able to tease apart a winter shutdown effect when fatalities cannot clearly be categorized within a particular period,

although it's not as transparent of an approach to the public as the Monitoring Team currently uses.

SRC Recommendation on Current Monitoring

Winter Shutdown: A simultaneous shutdown for 3.5 months with the Monitoring Team maximizing searches on or near the November 1 start date. The SRC strongly recommends that the Monitoring Team attempt to maximize the number of searches on and around November 1. Reactivation will also occur simultaneously to the degree possible, maximizing Monitoring Team searches on and around that date.

Current Program: Continue through the end of seasonal shutdown (09-10) to get a 3rd year of data, as two years of data is insufficient to reach conclusions.

Future Monitoring 2010-2012

Participants identified the following questions to consider in regards to a future transitional monitoring program:

- Should monitoring continue?
- If so, at what level of effort?
- How to achieve AWPRA-wide results?
- What would **goals & objectives** be for moving forward?
- What are the major questions we need to answer for management or compliance
- How can costs be reduced?

At the SRC's next meeting December 2-3, the SRC will discuss goals and objectives for the future monitoring program to develop proposals. Facilitator Gina Bartlett asked SRC members and members of the public to contemplate potential goals and objectives in preparation for the meeting.

Altamont Winds Inc. Analysis on Avian Mortality Reduction

Related Documents:

- P134_AWI Fatalities Report
- P135_Alameda County Memo on AWI Fatalities

Sandra Rivera of Alameda County said AWI is required under its permit to remove 10% of turbines as preparation for repowering, plus Tier 1 and 2 turbines. The County has asked AWI to relocate 31 high risk turbines to lower risk locations. AWI has conducted its own analysis in response (P134). The County is asking the SRC to review and comment on the AWI analysis, to comment on the rationale for hazardous turbine relocation, and to select one or two of its members to attend a November or December hearing on the third-year AWI permit review hearing before the East County Board of Zoning Adjustments.

Bill Damon of AWI said company officials see the data in the analysis as indicating a significant downward trend in the number of carcasses found in a field. They would like the SRC to comment on whether their analysis is correct, or whether SRC members see a different trend.

SRC Discussion

SRC members identified the following issues:

- The report is not inaccurate, but is incomplete.
- While there is a large change in 2008 and 2009, there were no changes in mitigation measures, so it calls into question the cause-and-effect relationship. The changes could be related to a number of variables, including changes in bird use.
- No adjustment factors were applied, there are no error terms, and a 2007 baseline is used (a year known to include a peak in fatalities of red-tailed hawks and burrowing owls).
- The report is descriptive and accurate if it is from the database. However, it's difficult to interpret whether or not there has been a statistically significant shift with only three data points.
- There was also a yearly decline in mortalities during the baseline period, the same trend as that found in this report)

Public Comment

Steve Mullen of AWI said he did the analysis, and used the data from the Monitoring Team's database. He did the exact same filtering as the Monitoring Team has called for. 2007 was chosen because it was the first year that data were collected consistently. There was a long discussion at the SRC meeting about the difficulties in comparing baseline to current study data. The search intervals are equal. He is not a trained statistician, but attempted to provide the raw data. He would not know how to calculate adjustment factors.

Mike Boyd of CARE said he is concerned that the non-settling parties not get a free pass. The baseline comparison numbers were chosen because they occurred before the monitoring program started, to eliminate bias.

Jim Hopper of AES said AWI is not covered by the settlement agreement so the 1300 comparison is not a requirement. Sandra Rivera of Alameda County affirmed that the original CUP conditions provide no metric to measure fatality reductions.

Bill Damon of AWI said company officials felt something was going on with the trend, although they didn't know the reasons, and felt it was important to publicize this fact.

SRC Recommendation

SRC members recommended that AWI update its report to include data from the baseline and 2006-2009 periods, as well as a breakdown by species, and as consistent an analysis as possible. The Monitoring Team's December report will have species-specific numbers that can be used.

Jim Estep agreed to represent the SRC at the East County Board of Zoning Adjustments meeting.

Restoration Bond

Related Documents:

- P136_Alameda County Memo on Restoration Bond

Andrew Young of Alameda County said windfarm permits include a restoration bond condition to ensure an adequate sum of money is available to guarantee reclamation of abandoned facilities and restoration of properties to pre-installation conditions. County staff has developed draft guidelines in discussions with companies and is asking the SRC to review them and provide input on recommended changes or additions to ensure the condition will provide for the restoration of biological resources and wildlife habitat. He clarified that the land would generally be restored to its previous use, which is generally ranchland.

Restoration Bond Feedback & Issues

SRC members provided the following comments on the draft guidelines and an accompanying list of facilities and actions:

- The SRC might examine Buena Vista as an example of the costs involved, as road reclamation was conducted there
- Are there general standards from surface mining that might be used?
- Consider whether sites might have possible oil and other toxics contamination (also wire rust), and methods to mitigate this
- Consider listed species habitat issues, including Section 7 permits, including ponds for tiger salamander habitat and frogs
- Make sure restoration is appropriately timed in regards to species needs, such as nesting, breeding, and migrating
- Roads generally will cause erosion problems that should be mitigated
- Consider that disturbance caused by removing roads may disrupt habitat or listed species
- Re-contour to natural slope, unless there are other issues warranting retaining an altered slope
- Consider piling loose earth into small berms for burrowing owl habitat
- Consider whether buried insulation will break down
- Consider establishing monitoring after restoration, at least once or on a yearly basis, to verify that restoration is successful, to provide information for other restorations, and to identify any remedial measures

Public Comment

Mike Boyd of CARE said he interprets the language of the condition to call for the restoration bonds as a means of enforcement of permit conditions. One SRC member agreed. Sandra Rivera said the County Counsel's office has described the condition's. intent as providing for cases of abandonment, rather than enforcement.

Bill Damon of AWI said he was concerned about a provision for monitoring, given that this is private property. Monitoring would add to the cost of the bond, as well. SRC members responded that monitoring could also protect the interests of a landowner.

Chris Dreiman of enXco said he was involved in the Buena Vista restoration. They were required to get demolition permits from Contra Costa County which identified specifications for the restoration. After the restoration was complete, the County inspected the site for compliance. That was how monitoring was handled in that case.

Documents Circulated at Meeting

- M39_APWRA String Characteristics Memo
- M40_October 2009 Data Analyses Presentation
- P129_Smallwood Search Interval Summaries Supplemental to M39 (10-14-09)
- P137_NextEra: Core Turbines Analysis (10-15-09)
- P138_Yee October Simulation Update
- P134_AWI Fatalities Report
- P135_Alameda County Memo on AWI Fatalities
- P136_Alameda County Memo on Restoration Bond
- P119_Request from Audubon, County and Settling Party Companies to SRC (8-18-09)
- P100_SRC Document List with Reference Numbers

SRC Meeting Participants

SRC Members Days 1 & 2

Joanna Burger
Jim Estep
Sue Orloff
Shawn Smallwood
Julie Yee

Staff

Gina Bartlett, Facilitator, Days 1-2
Sandi Rivera, Alameda County, Days 1-2
Andrew Young, Alameda County, Day 2
Ariel Ambruster, Facilitator Assistant, Days 1-2

Monitoring Team

Doug Leslie, ICF John & Stokes, Days 1-2
Jesse Schwartz, ICF Jones & Stokes, Days 1-2
Brian Karas, BRC, Days 1-2

Others

(Meeting Sign-in is optional)
Michael Boyd, CARE, Day 2
Renee Culver, NextEra, Day 1
Bill Damon, AWI, Day 2
Chris Dreiman, enXco, Days 1-2
Emre Ergas, NextEra, Days 1-2
Jon Harvey
Jim Hopper, AES, Days 1-2
Keith Jenkins, NextEra, Day 2
Nanette Leuschel, Ralph Prop II, Day 2
Ryan McGraw, AWI, Days 1-2
Anita Milman
Steve Mullin, AWI, Days 1-2
Theresa Rettinghouse

List of SRC Agreements Developed October 19 & 20

(Compiled from this document)

SRC Agreement: Criteria for Including Strings in the 50% Fatality Reduction Analysis

1. Length of monitoring is greater than or equal to one year's worth of contiguous data
2. That period spans at least each of all four seasons
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SRC Agreement on Feather Spots

- Separate feather spots out from whole carcasses in the analysis
- Present feather spot raw numbers
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- For large raptor feather spots, use existing records to develop a rate. This approach will be reviewed by the SRC Subcommittee.

SRC Recommendation on Suitability of Baseline

The SRC does not think the "1300" settlement baseline is suitable to measure a 50% reduction. Among the reasons are:

- The 1300 number was defined in the Settlement Agreement as being for **all** raptors, while the current study focuses on 4 focal raptor species.
- The baseline study used a different methodology for calculating mortality.
- 1300 was the upper end of a range of estimates in the study at that time, not a point estimate.

SRC Agreement on More Suitable Baseline Approaches:

- Using the existing analytical approach to compare the current study to the baseline study, analyzing by operator group, in geographically specific and narrow comparisons. The analysis would be aggregated by company, project, turbine type and turbine size. This information could then be summed to a near-Altamont-wide estimate. Questions asked would vary by group; certain questions would be asked in the baseline to current study comparison, while other questions might be asked for other analyses.
- Use a simulation or other method to compare the CEC baseline data to current study data, possibly by randomly picking current study searches that are closest to compare with the two baseline searches [One SRC member has since expressed concern about moving forward with this approach without further SRC discussion]. The CEC data include the northern APWRA area.
- Explore a comparison between years 1 & 2 of the current study and the last two years of the current study. This approach might lack sufficient years of data to reach conclusive results. It also would involve periods of time when various management

and mitigation measures were in effect. It would be important to incorporate bird use data to provide a context for the numbers and trends.

- All analyses would benefit from bird use data to help understand inter-annual variation in fatality rates.

SRC Recommendation on Current Monitoring

Winter Shutdown: A simultaneous shutdown for 3.5 months with the Monitoring Team maximizing searches on or near the November 1 start date. The SRC strongly recommends that the Monitoring Team attempt to maximize the number of searches on and around November 1. Reactivation will also occur simultaneously to the degree possible, maximizing Monitoring Team searches on and around that date.

Current Program: Continue through the end of seasonal shutdown (09-10) to get a 3rd year of data, as two years of data is insufficient to reach conclusions.