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A Roadmap for Permitting a Geothermal Project in Nevada

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ABSTRACT

The proactive Nevada State legislation favorable to renewable energy, the Renewable Portfolio Standard (RPS), Nevada Senate Bill 372 (SB372), responding, in part, to the 2000-2001 California energy crisis has boosted development potential for geothermal energy in Nevada which could rival the building of geothermal power plants in the late 1980's and early 1990's.

Expansion of existing facilities, building new, more efficient power plants and exploration of previously undeveloped resources are part of the development push. ORMAT currently has ongoing projects in all these areas in Nevada.

This paper will examine one facility expansion and optimization project in Nevada from the contractual and permitting perspective.

The Project

The Desert Peak (DP) project, located in Churchill County, Nevada, began operating in December, 1985, and is a double flash plant with a single turbine/generator unit currently producing an average 7 MW gross. In March 2002 ORMAT was granted a Power Purchase Agreement (PPA) with Nevada Power Company for an additional 15 to 30 MW from the DP resource. The new facility is expected to be a combined cycle flash/binary unit.

The DP production unit consists of 2,560 acres of which 50% is federal land managed by the Bureau of Land Management (BLM) and 50% is private land, within the old railroad checkerboard. All current producing wells and the DP plant site are on private land. The new facility, Desert Peak 2 (DP2), will also be on private land, adjacent to the existing facility. Four to six new wells are expected to be required with ancillary access roads and pipelines. Power transmission will be via an existing 120 kV line.

Contractual and Permitting Obligations

A PPA contains specific milestones which the seller of renewable power must meet. These milestones are defined as a balance between the buyer's, Nevada Power Company, obligations to their customers and time constraints on project construction. Contractual milestones will mirror all phases of the project. The seller must be prepared during contract negotiation to submit a realistic project schedule and to accommodate the buyer's obligations. The progress of the project depends in a large part on permitting. A permitting schedule must be developed with regulatory processing time estimated to the best of our ability. Milestones are defined by an end date after which the seller is in contractual default and places the buyer in jeopardy of default of its obligations under SB372.

To meet public interest requirements as well as national and State renewable energy development policy objectives, regulatory agencies must finalize permitting decisions in a timely fashion. Extraordinary delays by the regulatory agencies create tension for the seller, the buyer, and the Nevada legislature and its oversight regulatory agency the Public Utility Commission of Nevada (PUCN). In Nevada, the RPS is working because all these groups are working together for development of renewable energy.

Permitting Outline

Permitting a geothermal power plant can be viewed as a three tiered process: 1) permits required prior to construction, 2) permits for construction and 3) permits for operation. Each tier is composed of permit requirements from federal, state, county and local regulatory entities. These tiers must be completed sequentially, and there is a sequence of permits which must be completed within the tier. Figure 1 is a schematic of these tiers and the types of permits included.

This figure emphasizes the "waterfall" effect of the timeline. Very often one step cannot be taken until the previous step is completed. Overlap on the waterfall of the timeline is often permit preparation time.

Federal Permitting

The time frames involved for federal leasing and permitting to occur has come under intense scrutiny throughout the west since the publication of the National Energy Policy in 2001 and in Nevada the passage of SB372. The primary federal land management agency in Nevada is the BLM, responsible for managing some 69% of land within the state. Currently, there are 249 federal geothermal leases in effect in Nevada, covering 360,500 acres. This acreage comprises 67% of all federal lands leased nationally for geothermal development. In response to the rapid increase in industry interest in leasing, nearly half of these leases were issued during the past two years, and nearly an additional 100 leases will be issued during the next nine months.

All geothermal leasing and permitting of federal lands administered by agencies within the Departments of Interior or Agriculture are authorized under the Geothermal Steam Act of 1970 (GSA), as amended. The GSA delegates this authority to the Secretary of Interior, who may then develop the federal regulations implementing the GSA. These federal regulations are found in 42 CFR Part 3200. Subpart 3260 of these regulations provides the permitting procedures for drilling production and injection wells, while Subpart 3270 provides the permitting procedures for the utilization of federal geothermal resources and approval for power plants located on federal lands. Each production and injection well located on federal land must receive BLM approval prior to drilling the well. The development and use of federal geothermal resources must comply with all operational and environmental laws and standards. The National Environmental Policy Act (NEPA) requires that all development affecting federal lands must undergo an environmental review prior to receiving BLM approval. The environmental review includes parameters such as air and water quality, vegetation, wildlife and threatened and endangered species, cultural and visual resources, and socioeconomics. The scope of the environmental review is based on the potential significance of environmental issues the proposed project may encounter. More intense scooping, such as an Environmental Impact Statement, will significantly increase the permitting time frame.

BLM Nevada has taken a very proactive approach to the review of development proposals in an attempt to reduce permitting time frames where possible. Close coordination with State and local regulatory agencies throughout the review process insures overall operational and environmental requirements will be applied consistently. Developers are encouraged to meet early in the process to informally discuss overall project time frames and if revisions to the project may speed up review time through the reduction of the significance of environmental impacts. However, developers are most often prohibited from early discussion with regulators by confidentiality agreements until the PPA is made public by the utility.

However, aspects of the federal leasing and permit review process remain a major industry concern. The long lead time of 1.5 to 3 years necessary for the preparation and review of Resource Management Plans (RMP) or Environmental Impact Statements (EIS) can delay issuance of federal geothermal leases. Current Bureau policy requires all RMPs to analyze the effects of renewable energy development eliminating the need for further NEPA documentation for leasing. As part of the permit review process, BLM is required to consult with Native Americans to insure the proposed development will not adversely affect tribal sacred sites. Time frames for conducting the consultation are often greatly extended when necessary meetings are missed and BLM must continue efforts to meet requirements to consult in good faith. BLM is attempting to initiate consultation involving areas with high development potential in advance of receiving specific lease or permit application which hopefully will reduce the consultation process time frames once an application is submitted. Broad opportunities for any affected party to appeal a BLM decision to the Interior Board of Land Appeals (IBLA) is another critical time frame issue. In several recent BLM Nevada cases, IBLA has not granted a stay of the BLM decision, which allows the decision to remain in full force and effect during the pendency of the appeal allowing development to go forward in the interim.

State, County and Local Permitting

The State of Nevada has a well developed (no pun intended) geothermal regulatory agency, the Nevada Division of Minerals; rarely does well drilling or project area permitting within this agency take more than 3 months. The Nevada Division of Environmental Protection (NDEP) air and water quality are unfortunately subject to greater delays. Permitting of injection wells and plant facilities can take up to six months. These agencies are well aware of the limitations in their offices and will work with developers to minimize lag time where possible.

The DP2 project is located in Churchill County, one of the richest counties in the state in terms of geothermal energy. The county and local regulatory agencies are well versed in geothermal projects and potential and are very supportive to developers and operators. These agencies, for the most part, are quick to respond to permitting activities, acting in a timely fashion within a logical, workable regulatory framework.

Timelines

Figure 1 is an estimated timeline for the DP2 project. This timeline includes best estimates of progress which will be made by agencies outside of ORMAT and outside our control. Like a line of dominos, should one step in the process falter the others are unavoidably delayed, so developers are very much dependent on the efficiency of the permitting agencies. The timeline in Figure 1 is actually three lines or waterfalls: 1) permitting on private land; 2) permitting on BLM land using

a hired consultant and 3) permitting on BLM land without outside help.

ORMAT uses a consultant as intermediary for BLM permitting, but the actual timeline for the DP2 project (which is still in progress) is a hybrid of timelines 1 and 2. To capture the resource for the project, nine new well locations were selected, of which four were located on federal lands and access and pipeline right of ways determined for each. Extra drilling sites were permitted to allow flexibility without revising the permit. Regulations require that BLM assess the impacts of the entire project including private land use. This is an especially critical compromise for the developer within the railroad checkerboard where access between sections requires BLM right of way.

Figure 2 shows the estimated timeline for the Environmental Assessment (EA) required for the DP2 project with delays in completion noted. Of critical importance is that drilling permits could not be issued until the EA was complete and in this case a further 45 days were required after completion before receipt of the drilling permits. This lag time was not taken into account in the original timeline.

The major time saving element for DP2 was the ability to drill on three existing well pads on the private land while waiting completion of the BLM permitting process. The wells take approximately 45 to 60 days and the time saved was approximately four months. It is estimated that without outside consultant help the delay could have been twelve months. The BLM offices are very straight forward in giving the developer these delay estimates which vary between field offices and will help in making the decision of hiring consultant help. Also of importance was the ability to locate the plant on private land, eliminating some BLM permitting requirements such as the utilization plan and the site license.

Conclusion

The Desert Peak 2 project is the first new geothermal project contracted under the Nevada Renewable Portfolio Standard to be underway. Developers and regulators must closely coordinate efforts to insure all operational and environmental standards are met. Only through this coordination can the "ramping up" for the expected increases in geothermal exploration, development and permitting activity throughout the western U.S. and a roadmap for project permitting be successful. Each project has its own set of permitting issues, however the generalized roadmap presented here will not vary considerably and can be applied to other geothermal projects in Nevada. This brief overview of some strategies and lessons learned from the DP2 project is shared here for the benefit of other developers and regulatory bodies.

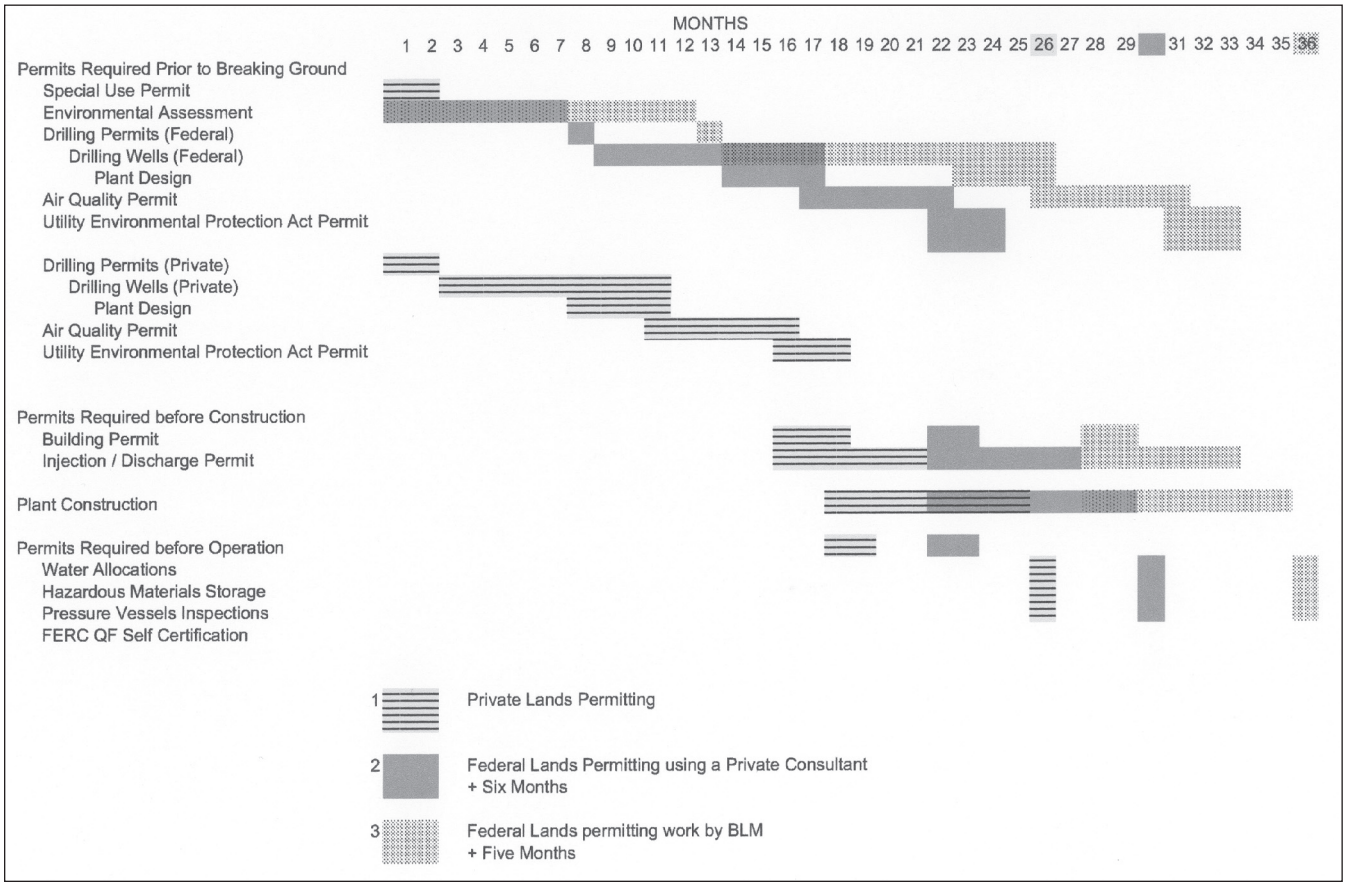
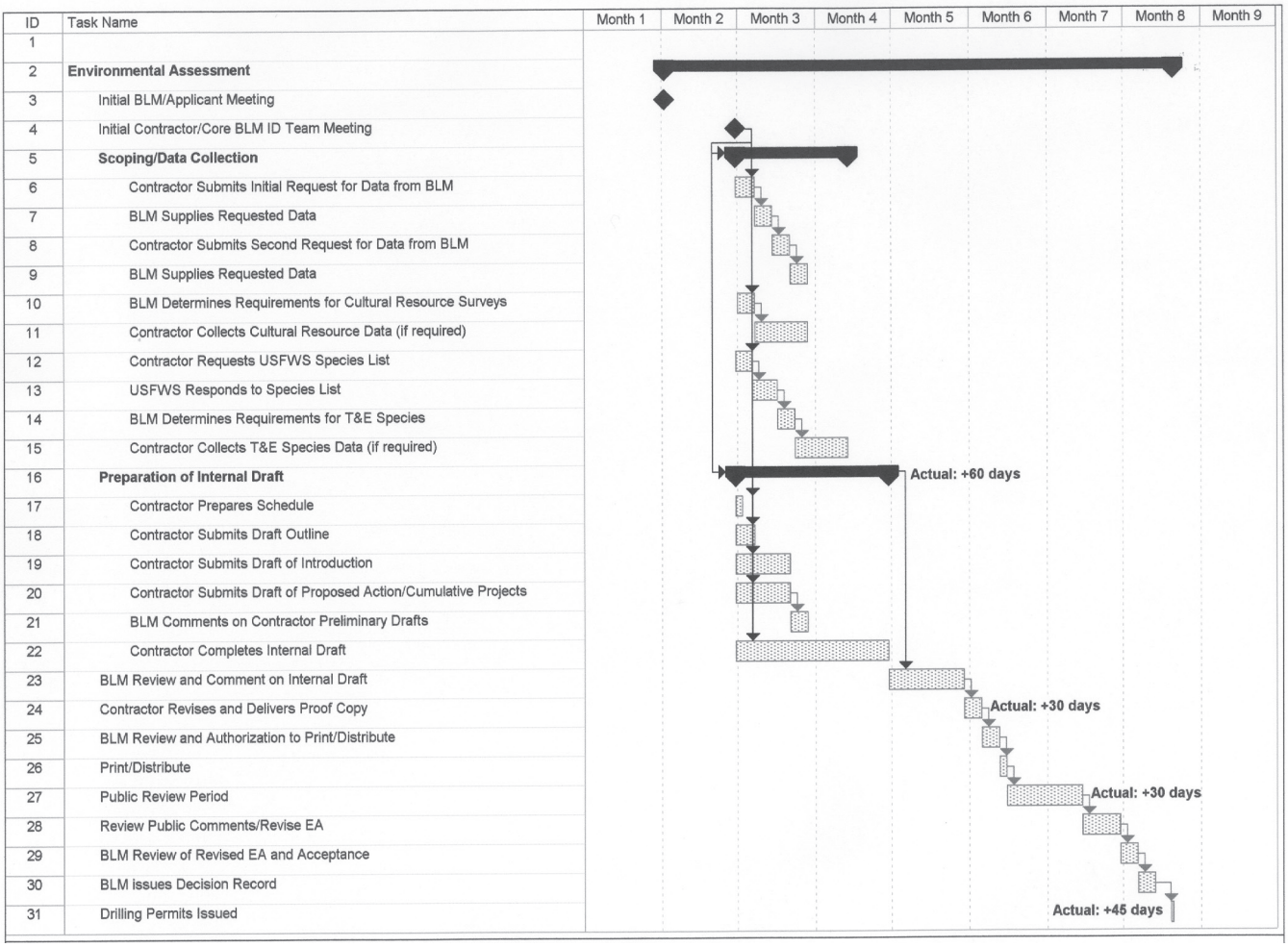


Figure 1. An estimatedd timeline for the DP2 Project..



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