DOCKET
09-AFC-6
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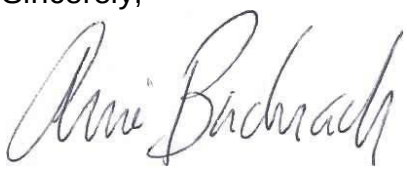
June 16, 2010

California Energy Commission
Docket Unit
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: **Plots Depicting GenTie Clearance from 3 Degree Approach Glide Slope and FAA Part 77 Horizontal Surface on Approach End of Runway 08 at the Blythe Airport**
DOCKET NO. (09-AFC-6)

Enclosed for filing with the California Energy Commission is the Plots Depicting GenTie Clearance from 3 Degree Approach Glide Slope and FAA Part 77 Horizontal Surface on Approach End of Runway 08 at the Blythe Airport for the Blythe Solar Power Project (09-AFC-6).

Sincerely,



Arrie Bachrach

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1220 Avenida Acaso
Camarillo, CA 93012

(805)388-3775 tel
(805)388-3577 fax

Memorandum

To	File: Solar Millennium 60139695 Task 6300	Page 1
CC	Carl Lindner, Mark Luttrell, Arrie Bachrach	
Subject	Plots Depicting GenTie Clearance from 3 degree Approach Glide Slope and FAA Part 77 Horizontal Surface on Approach End of Runway 08 at the Blythe Airport	
From	Howard Balentine	
Date	June 15, 2010	

At the Riverside County Airport Land Use Commission meeting on June 10, the Commission requested additional graphics depicting the clearance between the top of the GenTie poles in Compatibility Zone C and the approach 3-degree glide slope for Runway 08. An aircraft approaching Runway 08 will overfly the GenTie line in Zone C and the question posed is what would be the vertical clearance between the top of the GenTie poles and the approach slope if the GenTie line were to be move further west. This discussion occurred after the GenTie route had been previously moved to the west to avoid crossing Compatibility Zones B1.

Based on the prior request from the ALUC, the GenTie route was moved a quarter mile to the west to get farther from the departure end of the Runway 26 (approach end of Runway 08) and, correspondingly, to create a greater margin of safety for the approaching glide path. Beneath the flight path of the extended Runway 26/08 (Compatibility Zone C), the transmission line is designed with a 70 foot transmission tower height. This tower height offers the minimum safe ground clearance for a 220 kV transmission line. As illustrated in Figures 1 and 2, the ground elevation increases as you move closer to the McCoy Mountains. If the transmission line were to be even futher west, three adverse impacts would occur:

1. The transmission line height would approach the FAA Part 77height limit,
2. The transmission line construction would be significantly more costly due to the uneven terrain, and
3. The transmission line, being higher in elevation, would have a greater visual impact.
4.

Based on the above factors, the revised line routing was selected as the best alternative after considering all of the above factors. The interplay between the various controlling surfaces and the pole height as the GenTie route is moved farther west is presented in Figures 1 through 4.

Figure 1 presents a horizontal plan view the Blythe Airport, the BSEP project site and GenTie Route, and the McCoy Mountains. From Figure 1, it is apparent that the proposed GenTie route is already nestled into the rising slope of the McCoy Mountains.

Figure 2 present an West to East Vertical Slice from the McCoy Mountains to the approach end of Runway 08. This plot presents four separate surfaces: terrain heights, the height of the FAA Part 77 Horizontal Surface, the 3-degree glide slope, and a surface 70 ft above the terrain representing the height of any GenTie poles that will be located in Airport Compatibility Zone C. Plot demonstrates the optimal siting of the GenTie route through Compatibility Zone C west of Runway 08/26. The proposed location of the GenTie line through Zone C is close to maximizing the separation between pole height and the glide slope while at the same time maximizing the separation between the pole height and the Horizontal Surface. Moving the GenTie route will increase the separation from the glide slope but will result in a reduction in clearance underneath the Horizontal surface. At

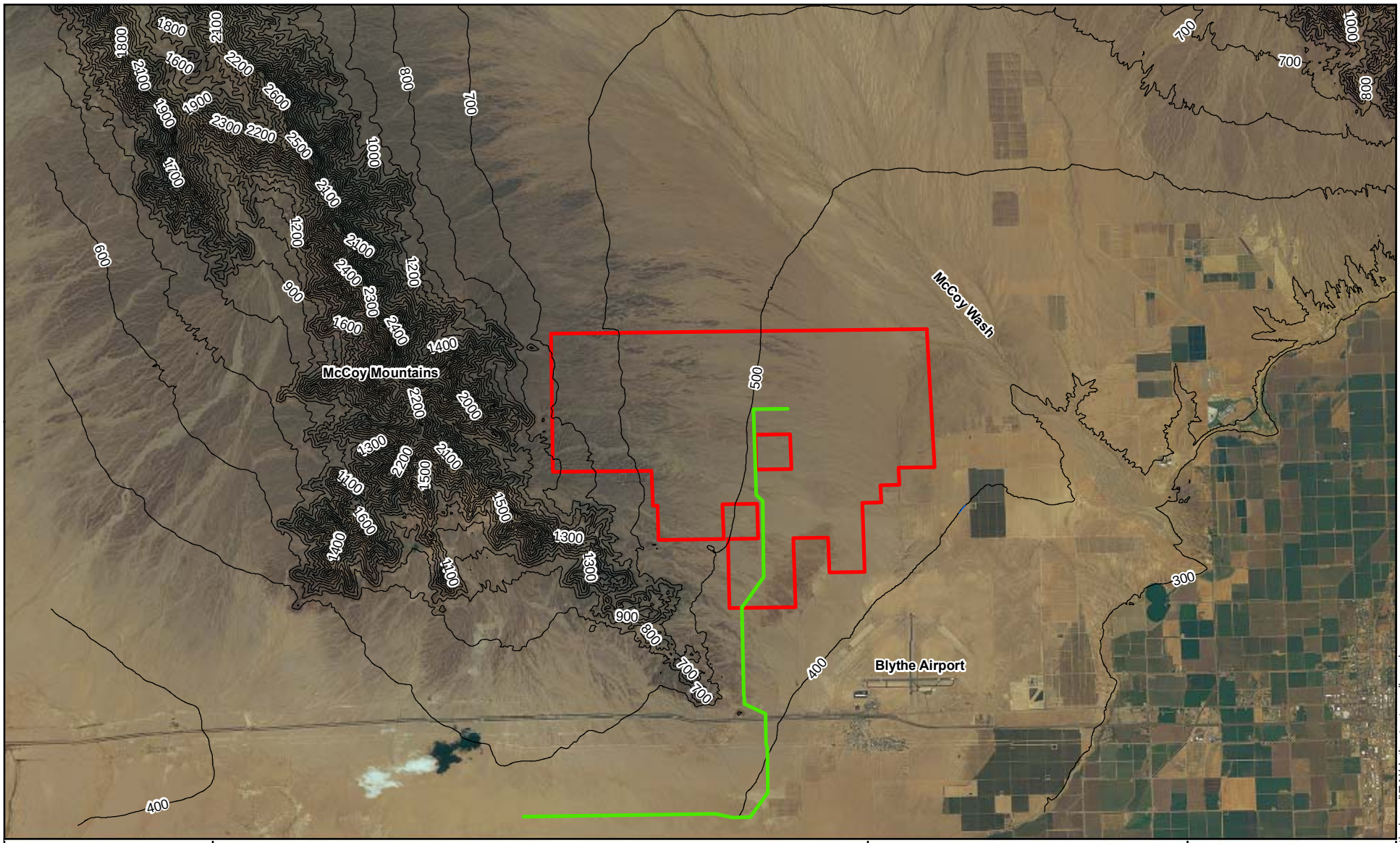
the same time, construction of the GenTie line becomes more difficult as the slope of the terrain increases as the pole location is move west.

Figure 3 present the clearance distance between the 70-ft pole height above terrain and the 3-degree glide slope for the West to East Vertical Slice presented in Figure 2. There is not much benefit in moving the GenTie line west. You get an increase in glide slope clearance of about 25 ft increase over the existing GenTie location clearance of approximately 200 ft (13% increase) by moving the GenTie line 1,000 ft west from the current location. You get an approximate 50 ft clearance benefit (25%) over the existing location by moving the line 2,000 ft west but the top of the poles would then be less than 15 ft below the FAA Part 77 Horizontal Surface and you are getting into much steeper terrain that would cause construction difficulties. Beyond about 2,000 ft west, there is essentially no benefit and the pole height would be at or above the FAA Part 77 Horizontal Surface.

Figure 4 present the clearance distance between the 70-ft pole height above terrain and the FAA Part 77 Horizontal Surface for the West to East Vertical Slice presented in Figure 2. As you move the GenTie line west in Zone C, the horizontal surface remains fixed relative to the airport elevation but terrain is rising underneath it. There is only modest amount of westward movement possible in the GenTie line (~500 ft or less) until there is a large decline in clearance as the terrain begins to rise steeply.

There is very marginal increase in the margin of safety produced by moving the GenTie line west approximately 500 ft. You get an increase in glide slope clearance of about 25 ft increase over the existing GenTie location but you get a decrease in clearance under the Horizontal Surface by approximately 15 ft (approximately 23% decrease). Moving the GenTie line more than 2,000 ft results in no benefit as the pole height would be at or above the FAA Part 77 Horizontal Surface.

An email from Mr. Douglas Moss of AeroPacific Consulting is attached. In this email he states that the current location of the GenTie route is optimal from a flight safety perspective.



Map Location

Legend

Project Right-of-Way

Proposed Transmission Line Route

Data Sources:
Air Photo, California Spatial Information Library, NAIP, 2009 Riverside County

0 2 4 Miles

N
W E
S

Blythe Solar Power Project

Figure 1
Topography

Palo Verde I, LLC

AECOM

Project: 60139695-5460
Date: May 2010

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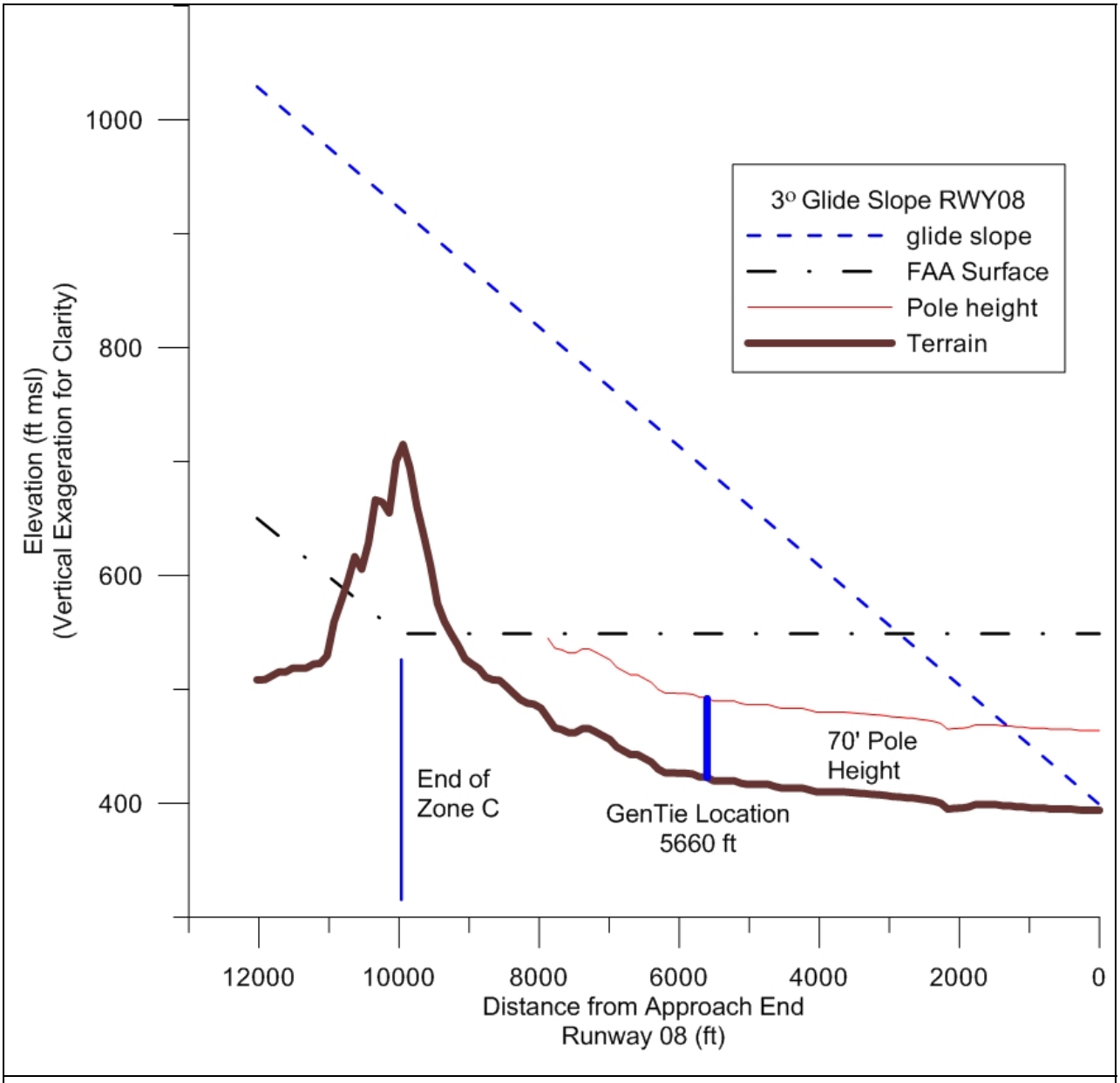

Figure 2. West to East Horizontal Slice Depicting the Terrain Height, the Top of the GenTie Poles in Compatibility Zone C, the FAA Part 77 Horizontal Surface, and the 3 Degree Approach Glide Slope for the Approach End of Runway 08 at Blythe Municipal Airport. The Plot Begins just West of the McCoy Mountains and ends at the Start of Runway 08.

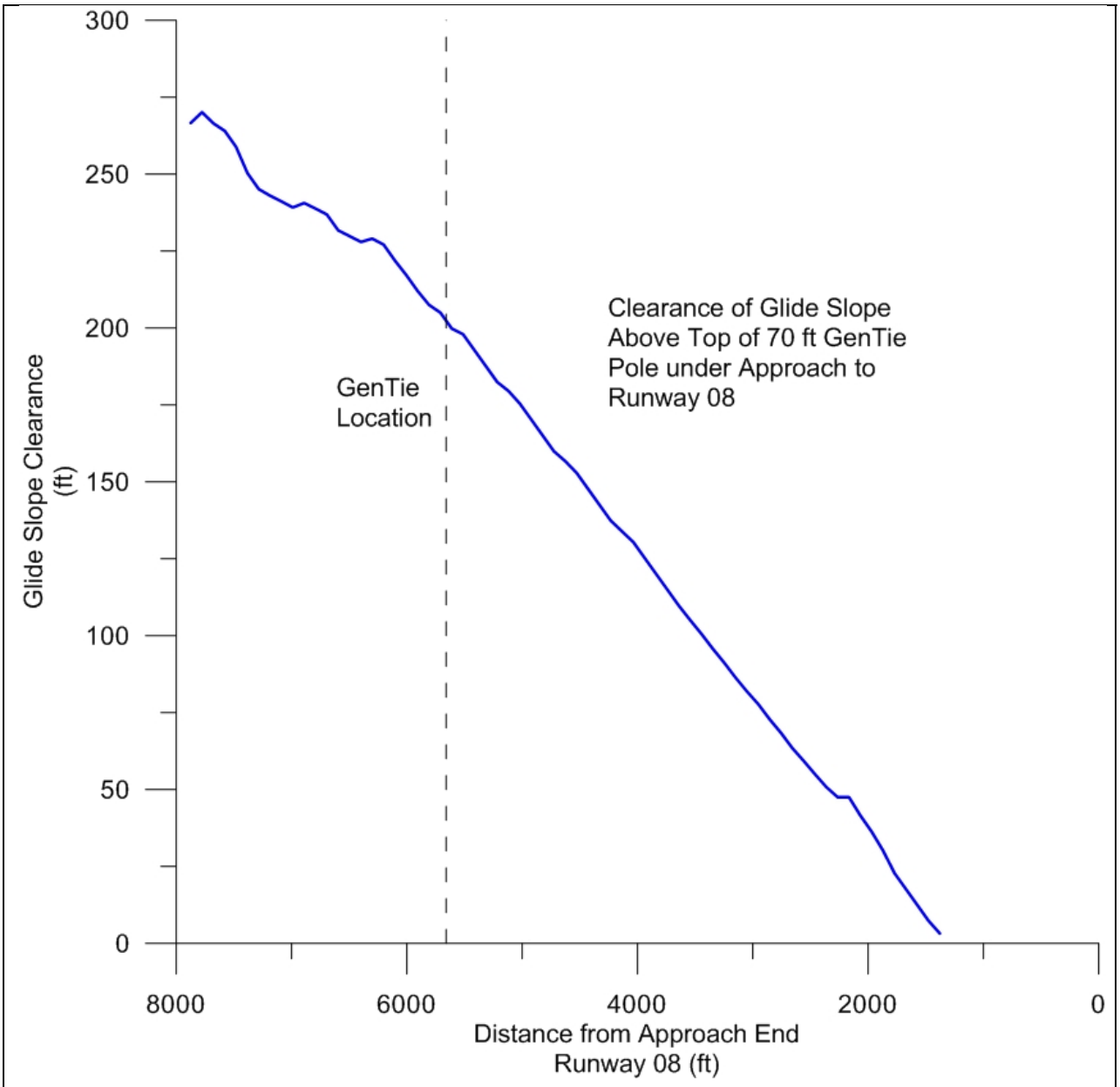

Figure 3. West to East Horizontal Slice Depicting the Clearance between the Top of the GenTie Poles in Compatibility Zone C and a 3 Degree Approach Glide Slope for Runway 08 at Blythe Municipal Airport. The Plot Begins just West of the McCoy Mountains and ends at the Start of Runway 08.

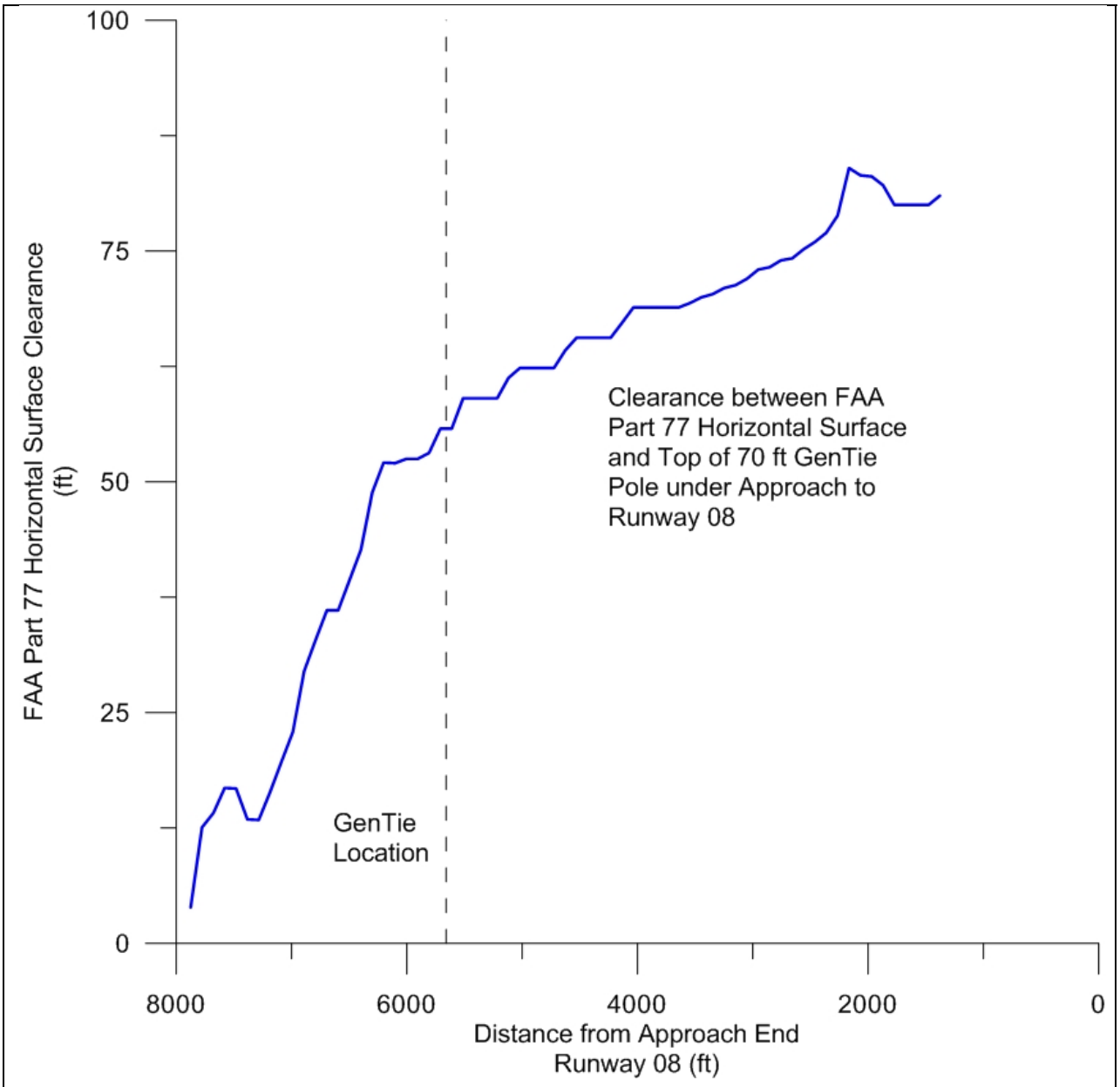

Figure 4. West to East Horizontal Slice Depicting the Clearance between the Top of the GenTie Poles in Compatibility Zone C and the FAA Part 77 Horizontal Surface for the Approach End of Runway 08 at Blythe Municipal Airport. The Plot Begins just West of the McCoy Mountains and ends at the Start of Runway 08.

Balentine, Howard

From: Douglas M. Moss [doug.moss@aeropacific.net]
Sent: Monday, June 14, 2010 9:22 AM
To: Balentine, Howard
Subject: Re: glide slope plots and moving the GenTie west

Howard,

Excellent depiction of the GenTie issue. I concur that the GenTie is now optimally positioned. Looking at Chart 1 (the 4-variable graph), it shows the GenTie position (blue bar) properly "nestled" against the ridgeline, that is, moving it any further west would reduce it's margin from the FAR 77 flat line. I don't think the 3 deg (landing approach) glideslope is much of a factor. The more prevalent factor, in my opinion, is maximizing the available climb-out angle for aircraft on departure, which would likely be more restrictive. I think the GenTie is best located exactly where you have it depicted. A good mitigation would be to have visibility balls located on the lines, as Solar Millenium has already volunteered to do.

Douglas M. Moss
AeroPacific Consulting

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http://www.aeropacific.net

On Fri, 11 Jun 2010 17:13:24 -0700, "Balentine, Howard" wrote:
Hello All –
Attached are two plots to answer questions posed by the Commission concerning the GenTie route. Plot 1 presents the terrain, the pole height, the FAA surface, and the 3 degree glide slope for the approach to Runway 08 as the GenTie is moved west. Plot 2 presents the clearance of the glide slope above a 70ft pole as the GenTie line is moved to the west.

There is not much benefit in moving the GenTie line west. You get an increase in glide slope clearance of about 25 ft increase over the existing GenTie location clearance of 200 ft (12.5% increase) by moving the GenTie line 1000 ft west. You get a 50 ft clearance benefit (25%) over the existing location by moving the line 2000 ft west but the top of the poles would then be close to bumping into the FAA Horizontal Surface and you are getting into steeper terrain. Beyond about 2000, there is essentially no benefit and the pole height would be

at or above the FAA Part 77 Horizontal Surface.

I question that an approximate 12.5% increase in the glide path clearance of approximately 25 ft obtained by moving the GenTie line 1000 ft west will produce a significant increase in the margin of safety.
Howard

STATE OF CALIFORNIA
ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

In the Matter of:
APPLICATION FOR CERTIFICATION
for the *BLYTHE SOLAR POWER PROJECT*

Docket No. 09-AFC-6
PROOF OF SERVICE
(Revised 1/26/2010)

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DECLARATION OF SERVICE

I, Carl Lindner, declare that on June 16, 2010, I served and filed copies of the attached:

Plots Depicting GenTie Clearance from 3 Degree Approach Glide Slope and FAA Part 77 Horizontal Surface on Approach End of Runway 08 at the Blythe Airport

The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at:

[http://www.energy.ca.gov/sitingcases/solar_millennium_blythe].

The document has been sent to the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(*Check all that Apply*)

For service to all other parties:

___X__ sent electronically to all email addresses on the Proof of Service list;

_____ by personal delivery or by overnight delivery service or depositing in the United States mail at Camarillo, California with postage or fees thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses **NOT** marked "email preferred."

AND

For filing with the Energy Commission:

__X_ sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (preferred method);

OR

_____ depositing in the mail an original and 12 paper copies, along with 13 CDs, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 09-AFC-6
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512

docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct.