

Subject: RE: FW: Glass Mountain

Date: Wed, 16 Jan 2002 14:26:09 -0800

From: Mitch Stark <mitchs@calpine.com>

To: 'Jeff Hulen' <jhulen@egi.utah.edu>

My comments were in an embedded table, but I guess they didn't come through to you. Here they are as a Word attachment.

I agree with your funding approach below; let's high-grade the immediate work for 100% Calpine funding, then proceed with a DOE application for the less-urgent stuff. I see the immediate work as being parts of Tasks 1,2,3 and 6. Do you think you can accomplish much of this work for \$25 K or so?

-----Original Message-----

From: Jeff Hulen [mailto:jhulen@egi.utah.edu]

Sent: Tuesday, January 15, 2002 3:07 PM

To: Mitch Stark; tom2@calpine.com; joe@calpine.com

Subject: Re: FW: Glass Mountain

Mitch --

I can't find any of your comments in the attachments you sent back, just the original straw-person proposal outlines. We'll work with you any way we can, and obviously within your financial constraints. The outlines were just our first assessment of the program and its possible needs from our perspective, and

I didn't expect you'd want to fund everything, and certainly not all at once.

Please let me know ASAP how you'd like to proceed. I can draft a final proposal

tailored to your specifications within a few days, but I'll be down at the Salton Sea all next week.

I think we have a superlative chance to obtain DOE funding, with a Calpine cost-share commitment, from the new DOE University research solicitation. We'll need to have a proposal done by about February 20, so that our Office of

Sponsored Projects can look it over and approve it before it goes in to DOE. The DOE funding cap for each project is in the neighborhood of \$125K per annum.

There's no fixed number for a desired corporate cost share, but I'm guessing about \$25K per annum or less would be sufficient, seeing that DOE-HQ wants to be involved as Glass Mountain gets developed.

Remember that the new funding wouldn't be available until probably September 2002, and that with our recent budget cuts, I can't cover much Medicine Lake work under the existing DOE grant. So if we want to get a bunch done prior to

your drilling efforts, it would be great if Calpine could provide some private funding for the work during the first half of CY 2002.


Thanks. I look forward to hearing from you.

Mitch Stark wrote:

> Jeff -- Thanks for your proposal. The scope and \$\$ are about an order of
> magnitude larger than we had in mind, but I think we can get where we need

> to be by trimming some tasks, deferring others and perhaps going after the
> DOE cost-share funds you mentioned.
>
> Here are my comments, keyed to your task numbers. Comments from Tom, Joe
and
> Mark are welcome.
> <<...OLE_Obj...>>
>
> -----Original Message-----
> From: Jeff Hulen [mailto:jhulen@egi.utah.edu]
> Sent: Monday, January 07, 2002 12:46 PM
> To: mitch@calpine.com; denis@ruralnetwork.net; gnash@egi.utah.edu;
> hmorris@egi.utah.edu; rlevey@egi.utah.edu
> Subject: Glass Mountain
>
> Mitch --
>
> As promised, attached is a proposal outline for the Glass Mountain work
> we've been discussing. A separate attachment discusses GIS support for
> the project as proposed by Greg Nash.
>
> We all look forward to getting started, and to being there when the
> first of many successful Calpine wells are completed at Glass Mountain
> this summer.
>
> Yours truly,
>
> Jeff <<Calpine_2001.doc>> <<Glass Mtn. Jan. 02 JBH.doc>>

> Name: Calpine_2001.doc
> Calpine_2001.doc Type: Winword File (application/msword)
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> Name: Glass Mtn. Jan. 02 JBH.doc
> Glass Mtn. Jan. 02 JBH.doc Type: Winword File (application/msword)
> Encoding: base64

 ToJeff.doc	Name: ToJeff.doc Type: Winword File (application/msword) Encoding: base64
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Task	Cost Description	Comment
	\$208,000 Total	
1	\$11,000 Literature Review	20 person-days seems high. If we trim the number of people involved (below), then presumably fewer people will need to read the literature. <i>May be a 1--man project now, so much less lit review will be needed.</i>
2	\$21,000 Log 88-28DPN	Might need to trim the number of analyses. But what about fluid inclusions? <i>Fluid inclusions some already done. Fewer XRD (\$130 clay, \$90 bulk), rely more on TS's. Calibrate Me-Blue?</i>
3	\$14,600 Hydrothermal mineralogy	Don't forget about rotary cuttings. There is no core from productive well segments. <i>Look for "magic bullets", skip the subtle stuff.</i>
4	\$32,000 Study intrusive rocks	Cost breakdown doesn't include Ar/Ar dating. Should UCLA U-Pb dating be considered, especially if free? <i>Review existing data (send Jeff 17A-6 correspondence). Axel could do zircons. Use TS to classify intrusion(s), that will allow for better selection of age-date samples.</i>
5	\$23,600 Geologic maps and sections	35 person days seems high. <i>Will scale back -- fewer sections = less \$.</i>
6	\$29,900 Wellsite geology guidelines	XRD, petro, and geochem could be trimmed, just use existing data. <i>Not "similar to Geysers Coring Project." Tecton has their own procedures and conventions, so no need to spell those out. Just assemble representative samples, write guidelines on categorizing the rocks, and highlight any particularly important features the wellsite geologists should look for.</i>
7	\$29,900 Caldera study	May be academic. Certainly the ring fracture system is an exploration target, even if the ring fractures are just "incipient". <i>Defer pending DOE cost-share.</i>
8	\$21,000 Model intrusion	Existing generic intrusion / hydrothermal models may be adequate for our purposes. <i>Defer pending DOE cost-share.</i>
9	\$25,000 Database, GIS	Should eliminate the need for Task 5. Otherwise, it's probably not worth it. <i>Defer pending DOE cost-share.</i>
10	??	<i>Trip to SR -- meet w/ wellsite geologists, present results to Calpine staff. Total 3-day visit..</i>

W. J. Vanuay 1/16/2002

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9	\$25,000 Database, GIS	if the ring fractures are just "incipient". Existing generic intrusion / hydrothermal models may be appropriate for these purposes. Should eliminate the need for Task 5. Otherwise, it's probably