

King, James J (CONTR) - CGI-7

From: Long, Andrew T CIV USARMY CENWP (US) <Andrew.T.Long@usace.army.mil>
Sent: Monday, November 20, 2017 12:54 PM
To: Bent Mouritsen (bmouritsen@usbr.gov); Brown II, George L (BPA) - PGA-6
Subject: [EXTERNAL] HOT - Funding Update: HQ Funding

George/Bent,

I was in DC last week and had a chance to swing by John Coho's cube. John is Chief of Sustainability and has a responsibility to lead the charge on the Presidential mandate to lower consumption (via efficiency improvements and renewables) by 30%. A lot of the low hanging fruit through the Corps has already been scooped up. We chatted for a little while about HOT and some of our initiatives. In short:

Facility Audits:

John isn't interested in funding this initiative. He's seen some audits from other power houses and he didn't recall that there were a lot of savings to be had. We also discussed some of the challenges in building the economic case for such upgrades. If we're only allowed to use the utility rate that powerhouse sells the power for then we're talking about a pretty low rate and paybacks will be long.

T2:

John was a little more interested in T2. We discussed, in layman's terms, that T2 can increase the operational efficiency of our units and ultimately increase the output of the power plant. He would be interested in seeing something more from us on this. I'm not sure what we could use his funding for, though. Would we be allowed to use HQ funding to install and/or implement T2 at various plants? Do either of you see any hang-ups here? I'm just trying to be creative on funding options. If the JOC is asking us to "tell a story" and show progress then maybe a win with T2 could grease the skids for a more permanent funding stream. Let me know your thoughts.

If I don't talk to you before, have a great Thanksgiving!

Thanks,

Andrew Long, P.E., C.E.M.
Product Coordinator
andrew.t.long@usace.army.mil

U.S. Army Corps of Engineers
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p:503-808-5290 | c:503-780-6238
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From: Long, Andrew T CIV USARMY CENWP (US) <Andrew.T.Long@usace.army.mil>
Sent: Friday, November 03, 2017 2:08 PM
To: Bent Mouritsen (bmouritsen@usbr.gov); Brown II,George L (BPA) - PGA-6
Subject: [EXTERNAL] HOT: Corps Funding

George and Bent,

I had a conversation with Scott Cotner this morning. HDC annually receives about \$175K from ERDC for R&D. Scott currently manages these funds. I asked if it were conceivable to use these funds to fund HDC's participation in bi-annual meetings, administrative tasks, scope development, etc. Scott didn't say no. This was surprising since everyone else has said no over the last two years ;-). Anyway, the funds for FY18 are currently obligated. There is, however, a midyear update that we'll provide to the board who reviews this program. If it appears that any of the R&D efforts will under execute this year (which is likely) then I can propose to use the extra funds for our April meeting. We'll also be able to submit a proposal in future FY's to support HOT. It will always be competed against other R&D proposals submitted by HDC. So, no guarantees. It is the closest thing I've found for funding, though, so I thought I'd share. I'll check in on this in the Jan/Feb time frame. Our mid-year meeting takes place in March.

Have a great weekend!

Andrew Long, P.E., C.E.M.
Product Coordinator
andrew.t.long@usace.army.mil

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From: Summers, Joseph <jsummers@usbr.gov>
Sent: Monday, August 27, 2018 10:08 AM
To: Brown II,George L (BPA) - PGA-6
Cc: Allen,Christopher R (BPA) - PGAF-6; Todd,Wayne A (BPA) - PGA-6; Alders,James S (BPA) - PGAF-6
Subject: [EXTERNAL] Re: [EXTERNAL] GCL T2 follow up - small cap funds

Yes. Grand Coulee is willing to support/fund the T2 optimization. I will be working with their team to set up the small cap project.

On Mon, Aug 27, 2018 at 10:59 AM Brown II,George L (BPA) - PGA-6 <glbrown@bpa.gov> wrote:

Hi Joe – Following up after our HOT/JOC meeting on August 7. You were going to check with Rob the following week about small-cap funds for Toby Steves to begin work on the stand alone T2 for Grand Coulee.

Any luck?

Thanks,

George Brown

Senior Mechanical Engineer

BPA Generating Assets, PGA-6

503-230-5190

King,James J (CONTR) - CGI-7

Subject: FW: Expense budget - optimization carve-out

From: Brown II,George L (BPA) - PGA-6

Sent: Friday, June 29, 2018 2:57 PM

To: Bent Mouritsen (bmouritsen@usbr.gov); Long, Andrew T NWP

Subject: FW: Expense budget - optimization carve-out

Hi Andy and Bent – I had a good conversation with Matt Dau (BPA O&M Program Manager) about carving out some bit of the routine expense budget for HOT and optimization projects. If either of you have any leverage with the expense budget managers on your side, including the JOC reps, I'd encourage you to reach out to them to advocate for an optimization budget.

Thanks,
George

From: Brown II,George L (BPA) - PGA-6

Sent: Friday, June 29, 2018 2:46 PM

To: Dau,Matt R. (BPA) - PGAF-6

Subject: Expense budget - optimization carve-out

Hi Matt – Here's the HOT hopper. The average expense estimate through FY25 is about \$190K/year. Anything in the \$100K - \$200K range would be way better than nothing.

Thanks,
George

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From: Brown II,George L (BPA) - PGA-6
Sent: Thursday, June 28, 2018 9:12 AM
To: Todd,Wayne A (BPA) - PGA-6
Subject: GCL T2 and HOT

Hi Wayne – I just had a lengthy conversation with Bent Mourtisen and I'm hoping you can do me a favor? If you have the opportunity can you discuss GCL T2 with Rob and Joe? Bent said that the USBR isn't hearing enough from BPA about our support for optimization. We need a strong advocate at the JOC level.

In the long run I will continue to advocate for a budget carve out for optimization projects and defined processes for funding approval for BPA/HOT initiated projects. I'd like to engage you in meetings with the JOC co-chairs and HOT co-chairs in the future.

Thanks,
George

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From: Brown II,George L (BPA) - PGA-6
Sent: Friday, June 29, 2018 3:24 PM
To: tsteves@usbr.gov; Grover, Steven M NWP (Steven.M.Grover@usace.army.mil); Alders,James S (BPA) - PGAF-6; Yokoyama,Kenneth A (BPA)
Subject: Grand Coulee T2 - funding update

Hi All – Bent and I connected yesterday to further discuss funding avenues. Bent had discussions with Joe Summers (USBR JOC Co-Chair) and they believe that the stand-alone T2 (HydrOS) work proposed for Grand Coulee is capital. Because the cost magnitude is relatively small, Bent said that he and Joe agreed that the Small Cap program is the best fit. We don't have official word yet, but it sounds promising that Joe will be able to allocate Small Cap funds for this project. We're awaiting further word from Joe.

Steve – Have you had a chance to provide feedback on budget for ACCS to support this project and have you back-checked Toby's estimate? Ultimately we'll need this to inform Bent and Joe of the total cost expectation.

Thanks,
George Brown
Senior Mechanical Engineer
BPA Generating Assets, PGA-6
503-230-5190

King,James J (CONTR) - CGI-7

From: Brown II,George L (BPA) - PGA-6
Sent: Monday, November 27, 2017 6:41 PM
To: Newton,Tiffany L (BPA) - PGAF-6
Cc: Bent Mouritsen (bmouritsen@usbr.gov); Long, Andrew T NWP
Subject: HOT 2017 November combined JOC presentation.pptx
Attachments: HOT 2017 November combined JOC presentation.pptx

King,James J (CONTR) - CGI-7

From: Allen,Christopher R (BPA) - PGAF-6
Sent: Wednesday, November 22, 2017 11:49 AM
To: Brown II,George L (BPA) - PGA-6
Subject: RE: Follow up Meeting for HOT co-chairs and JOC cochairs

George-

In summary of my discussion with the JOC; it would be a great opportunity to demonstrate the past and potential successes of HOT during the combine JOC. This would give the audience a new perspective of realized or potential value of HOT activities.

Chris

From: Brown II,George L (BPA) - PGA-6
Sent: Wednesday, November 22, 2017 10:01 AM
To: andrew.t.long@usace.army.mil; bmouritsen@usbr.gov; Scott Thoren (Scott.D.Thoren@usace.army.mil); Allen,Christopher R (BPA) - PGAF-6; jsummers@usbr.gov
Cc: Todd,Wayne A (BPA) - PGA-6
Subject: RE: Follow up Meeting for HOT co-chairs and JOC cochairs

Hi All,

FYI - I've started accumulating HOT benefit and cost information, but have not completed this effort yet. See attached for current draft.

Thanks,
George

<< File: HOT Hopper List 2017-11-3 DRAFT.xlsx >> << File: HOT benefits - incomplete DRAFT.docx >>
-----Original Appointment-----

From: Newton,Tiffany L (BPA) - PGAF-6
Sent: Monday, November 13, 2017 11:50 AM
To: Newton,Tiffany L (BPA) - PGAF-6; Brown II,George L (BPA) - PGA-6; andrew.t.long@usace.army.mil; bmouritsen@usbr.gov
Subject: Follow up Meeting for HOT co-chairs and JOC cochairs
When: Wednesday, November 22, 2017 11:00 AM-12:00 PM (UTC-08:00) Pacific Time (US & Canada).
Where: Bridge: 866-340-4886 Call ID: 622917044#

The JOC is requesting a follow up meeting with the HOT Team co-chairs.

Can we make this time work by phone since schedules are hectic? I will forward to the JOC once a time is confirmed.

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From: Brown II,George L (BPA) - PGA-6
Sent: Monday, April 16, 2018 2:26 PM
To: Newton,Tiffany L (BPA) - PGAF-6
Cc: Long, Andrew T NWP; Bent Mouritsen (bmouritsen@usbr.gov)
Subject: RE: HOT TEAM

Hi Tiffany – I recommend cancelling the room. I don't expect we'll have a meeting for some time, until after funding is coordinated.

Thanks,
George

From: Newton,Tiffany L (BPA) - PGAF-6
Sent: Monday, April 16, 2018 2:15 PM
To: Brown II,George L (BPA) - PGA-6
Subject: RE: HOT TEAM

I've been holding the room for the HOT Team meeting. Are we having the meeting?

You might want to postpone the meeting until you get funding figured out, etc. The team could always meet in fall time.

-----Original Appointment-----

From: Newton,Tiffany L (BPA) - PGAF-6
Sent: Monday, December 04, 2017 10:02 AM
To: Newton,Tiffany L (BPA) - PGAF-6
Subject: HOT TEAM
When: Wednesday, April 25, 2018 11:00 AM-5:00 PM (UTC-08:00) Pacific Time (US & Canada).
Where: Room 670

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From: Alders,James S (BPA) - PGAF-6
Sent: Wednesday, September 19, 2018 1:21 PM
To: Brown II,George L (BPA) - PGA-6
Subject: RE: T2 for Grand Coulee

Let me follow up with Joe and see if I can find something. I should see him next Tuesday at Grand Coulee. It would be a good opportunity to have all the players on that in the same place at the same time.

Jim Alders

jsalders@bpa.gov | O: (503) 230-3048

From: Brown II,George L (BPA) - PGA-6
Sent: Wednesday, September 19, 2018 12:32 PM
To: Alders,James S (BPA) - PGAF-6
Subject: RE: T2 for Grand Coulee

Did they provide any insights about the funding delay? We've been hearing that they're on the brink of providing small cap funds to Toby for months now. The last message from Joe on Aug 27 read as if funding was imminent.

From: Alders,James S (BPA) - PGAF-6
Sent: Wednesday, September 19, 2018 12:19 PM
To: Brown II,George L (BPA) - PGA-6; Todd,Wayne A (BPA) - PGA-6
Subject: RE: T2 for Grand Coulee

No, during the meeting we discussed funding. But there was no resolution. I agree that Toby, GCL, and ACCS should work towards the best solution for them.

Jim Alders

jsalders@bpa.gov | O: (503) 230-3048

From: Brown II,George L (BPA) - PGA-6
Sent: Wednesday, September 19, 2018 12:15 PM
To: Alders,James S (BPA) - PGAF-6; Todd,Wayne A (BPA) - PGA-6
Subject: RE: T2 for Grand Coulee

Hi Jim – It is my understanding that the latest version of T2 and HydrOS use the same algorithms, both written by ACCS. Regardless of which direction this ends up going, there is value having Toby set up HydrOS in Denver to estimate the benefits for GCL. Much of the work he'll do to configure HydrOS, including collecting and updating all of the configuration files (flow tables, etc) would be transferrable to T2 in GDACS.

We've discussed that Toby, ACCS, and GCL should collaborate to develop an implementation plan, at which point they could decide between the stand-alone or integrated T2.

Have you heard anything lately from Toby about whether or not he received small cap funds from Joe?

G

From: Alders,James S (BPA) - PGAF-6
Sent: Wednesday, September 19, 2018 10:48 AM

To: Brown II,George L (BPA) - PGA-6; Todd,Wayne A (BPA) - PGA-6

Subject: T2 for Grand Coulee

George / Wayne,

We got to talking about T2 at Grand Coulee during the GDACS install OT meeting yesterday. Apparently the bugs that were present when we originally tried to engage this system about 4 years have been figured out. ACCS and Coulee both appear to want the T2 module in GDACS to be used at Grand Coulee instead of HydrOS from TSC. I indicated that this would probably be preferable since it's probably best to run the same algorithms across the big-10 rather than having a special system at Coulee. Also, this system is inherent to GDACS, so the operators at Coulee should be able to take recommendations from the GDACS T2 and apply them across the plant automatically, or at least with the push of a button.

Let me know if you have questions.

Jim Alders

Reclamation PNR Project Representative

Federal Hydro Project Operations (PGAF-6) | BPA

jsalders@bpa.gov | O: (503) 230-3048

Hydrogeneration Optimization Team (HOT) JOC Brief

George Brown, BPA

Bent Mouritsen, USBR

Andrew Long, USACE-HDC

29 November 2017



HOT Benefits

- Re-evaluating hydro optimization benefits
 - ▶ Funding support has diminished
 - ▶ Historical review of benefits and costs
 - ▶ Estimate of future benefits and costs





