Warm Springs Dam Hydroelectric Project

November 20, 2013

EnergyTrust of Oregon

Summary

Project context

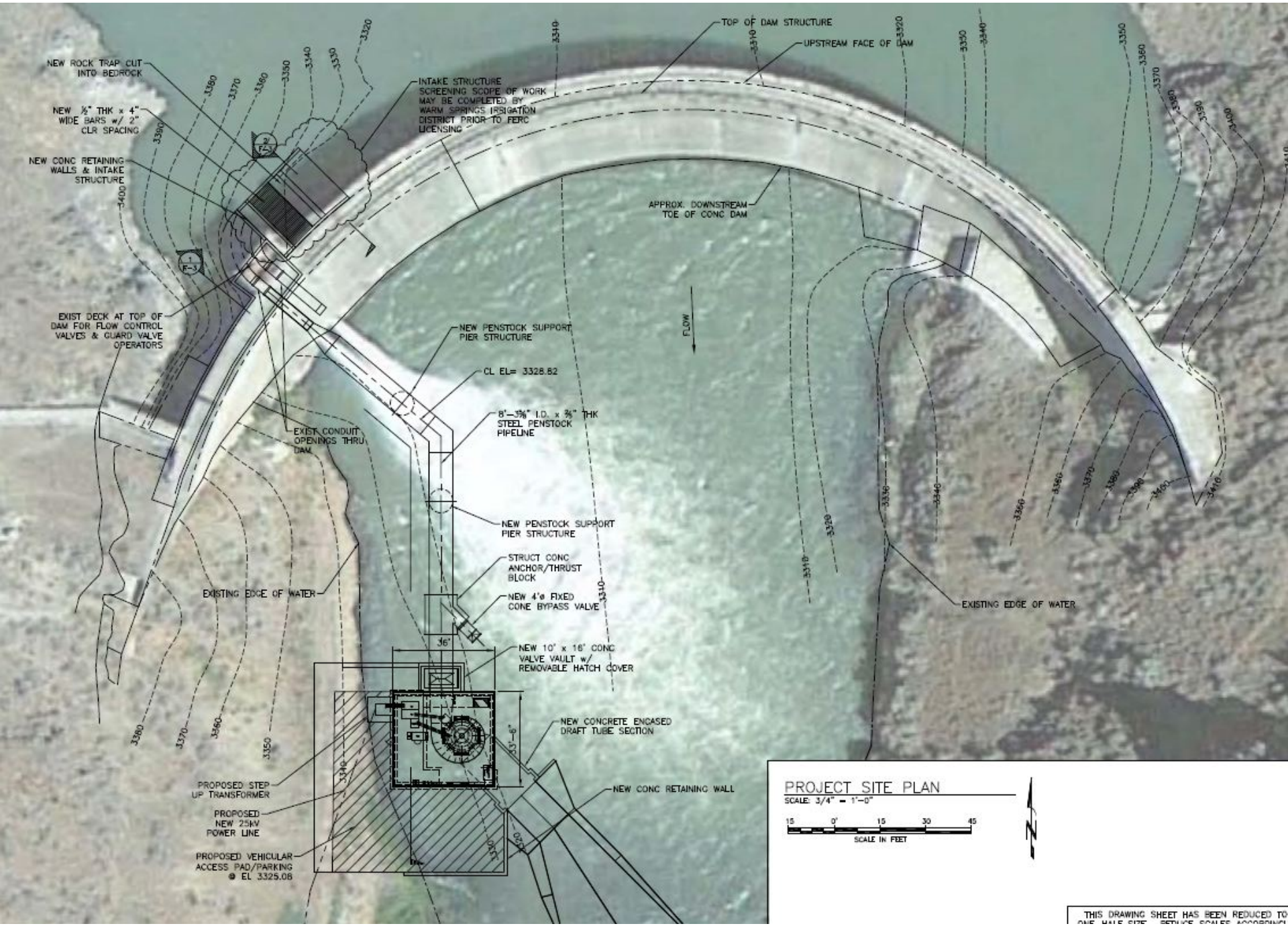
Detail about this project

Above-market cost evaluation

Proposed incentive and REC terms

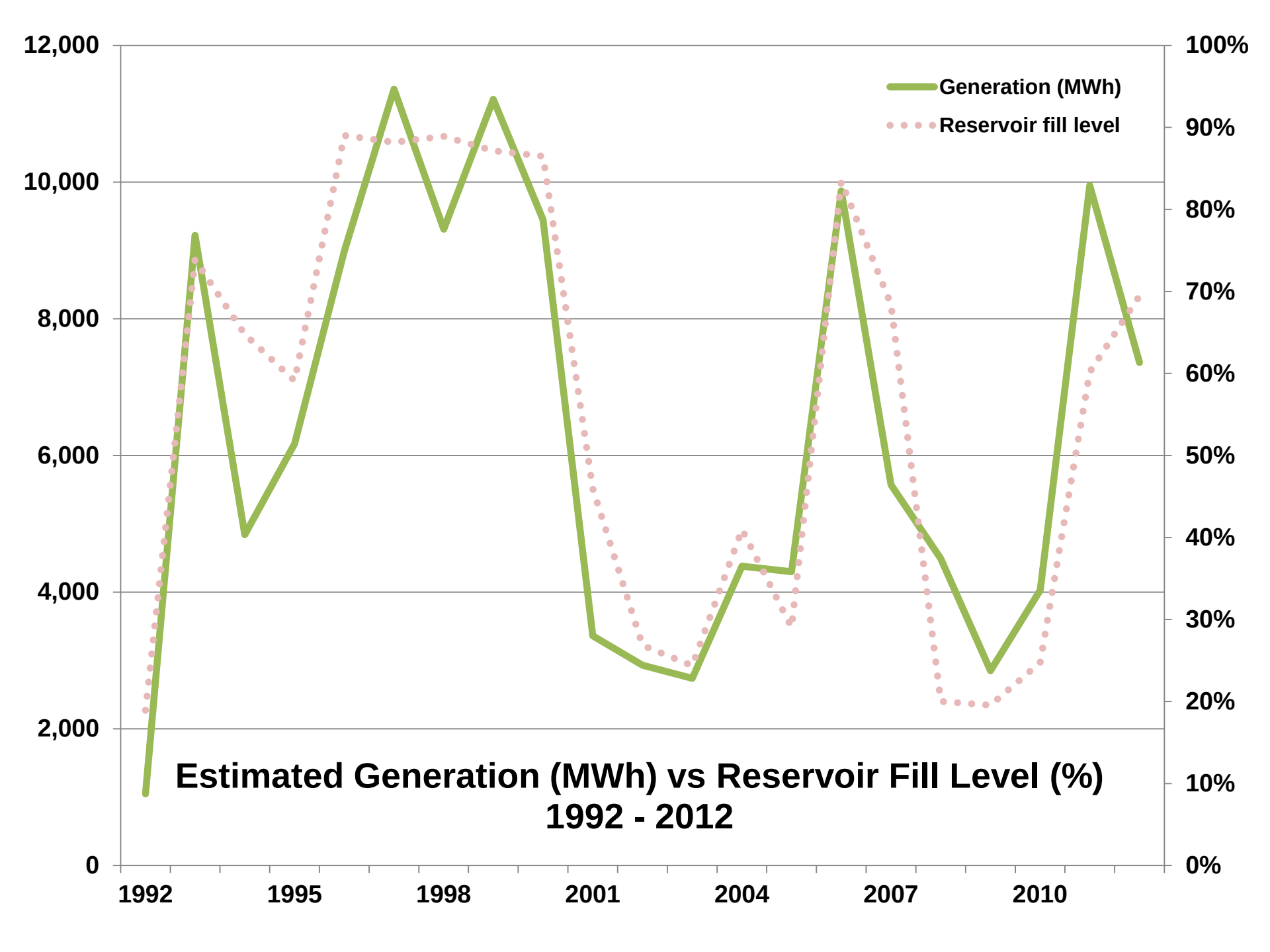
The project:

- Add 2.7 MW turbine and generator at base of Warm Springs Dam
- Run 2.2 miles of 25kV lines to interconnect with Harney Electric Co-op
- Wheel power across Harney and BPA to sell to PacifiCorp


TOP OF DAM STRUCTURE
UPSTREAM FACE OF DAM
NEW ROCK TRAP CUT INTO BEDROCK
NEW ½" THK x 4" WIDE BARS w/ 2" CLR SPACING
NEW CONC RETAINING WALLS & INTAKE STRUCTURE
INTAKE STRUCTURE SCREENING SCOPE OF WORK MAY BE COMPLETED BY WARM SPRINGS IRRIGATION DISTRICT PRIOR TO FERC LICENSING
APPROX. DOWNSTREAM TOE OF CONC DAM
EXIST DECK AT TOP OF DAM FOR FLOW CONTROL VALVES & GUARD VALVE OPERATORS
FLOW
NEW PENSTOCK SUPPORT PIER STRUCTURE
CL EL= 3328.82
8'-3⅝" I.D. x ⅜" THK STEEL PENSTOCK PIPELINE
EXIST. CONDUIT OPENINGS THRU DAM
NEW PENSTOCK SUPPORT PIER STRUCTURE
STRUCT CONC ANCHOR/THRUST BLOCK
NEW 4'ø FIXED CONE BYPASS VALVE
EXISTING EDGE OF WATER
EXISTING EDGE OF WATER
36'
NEW 10' x 16' CONC VALVE VAULT w/ REMOVABLE HATCH COVER
NEW CONCRETE ENCASED DRAFT TUBE SECTION
33'-6"
PROPOSED STEP UP TRANSFORMER
PROPOSED NEW 25kV POWER LINE
PROPOSED VEHICULAR ACCESS PAD/PARKING @ EL 3325.08
NEW CONC RETAINING WALL
PROJECT SITE PLAN
SCALE: 3/4" = 1'-0"
15 0' 15 30 45
SCALE IN FEET
N
THIS DRAWING SHEET HAS BEEN REDUCED TO

Review points

- Basis for participation
- Site control
- Development and operational team expertise
- Resource assessment
- Energy conversion technology and estimated generation
- Permitting
- Interconnection
- Power purchase agreement
- Project revenues
- Project capital costs and operational and maintenance expenses
- Financing, grants, and incentives


Estimated Generation (MWh) vs Reservoir Fill Level (%)
1992 - 2012
Generation (MWh)
Reservoir fill level
12,000
10,000
8,000
6,000
4,000
2,000
0
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1992
1995
1998
2001
2004
2007
2010

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Above-Market Cost Evaluation

Project Financial Summary - Present Value Basis - Evaluated over 20 years	
Revenues	
Power Sales	$2,831,830
Tax benefits (Investment Tax Credit and depreciation)	$ 810,730
NPV Total Revenues	**$3,642,560**
Costs	
Equity	$2,145,111
Principal and Interest Payments	$1,003,361
O&M	$1,059,128
Taxes	$ 33,083
NPV Total Project Cost	**$4,240,683**
Above Market Cost (Revenues minus Costs)	**$ (598,123)**
Above Market Cost Increased for Taxability of Incentive	**$ (970,286)**

Proposed Incentive

<u>Evaluation Criteria</u>

Project Term:	20 Years at 12% discount rate
Above-Market Cost (NPV):	$970,286

Proposed Incentive:	$740,000
Payment Terms:	Three payments of $246,666
NPV Incentive	$592,452, 61% of AMC
REC Allocation:	82,000 total (65% of expected generation)
REC Value:	$9.02
Energy Value:	$1.03MM per aMW

Comparison to past projects

Project		$ per aMW
COID Juniper Ridge Phase 1	$	652,028
Warm Springs Dam Hydro	*$*	*1,030,916*
COID JR1 & JR2 combined	$	1,164,709
Klamath Irrigation C-Drop	$	1,228,154
Three Sisters Irrigation District	$	2,825,806
Swalley Irrigation District	$	2,916,985
COID Juniper Ridge Phase 2	$	3,012,812
FID LDPP	$	3,767,742
Monroe Drop - Natel / NUID	$	4,184,713