Farmers Irrigation District Plant Two Hydro Turbine Upgrade Project

November 20, 2013

EnergyTrust of Oregon

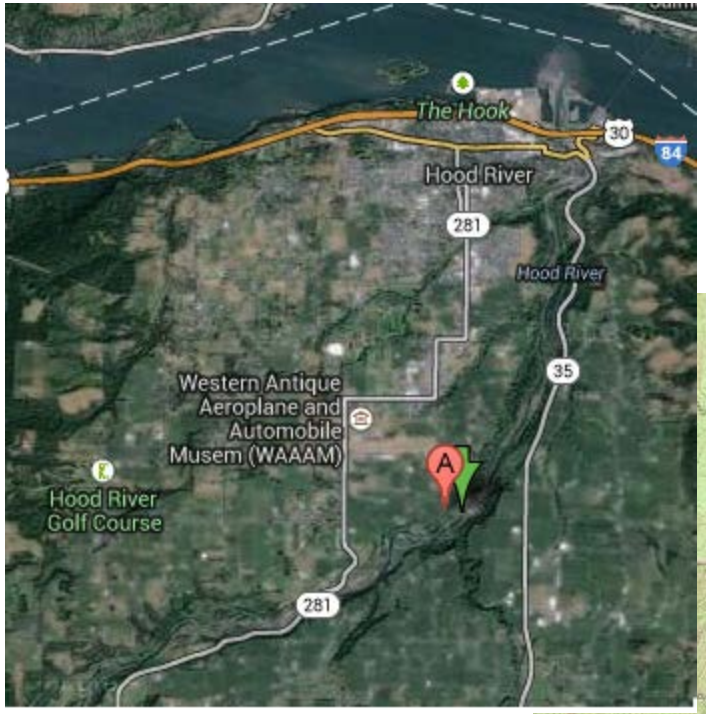
Summary

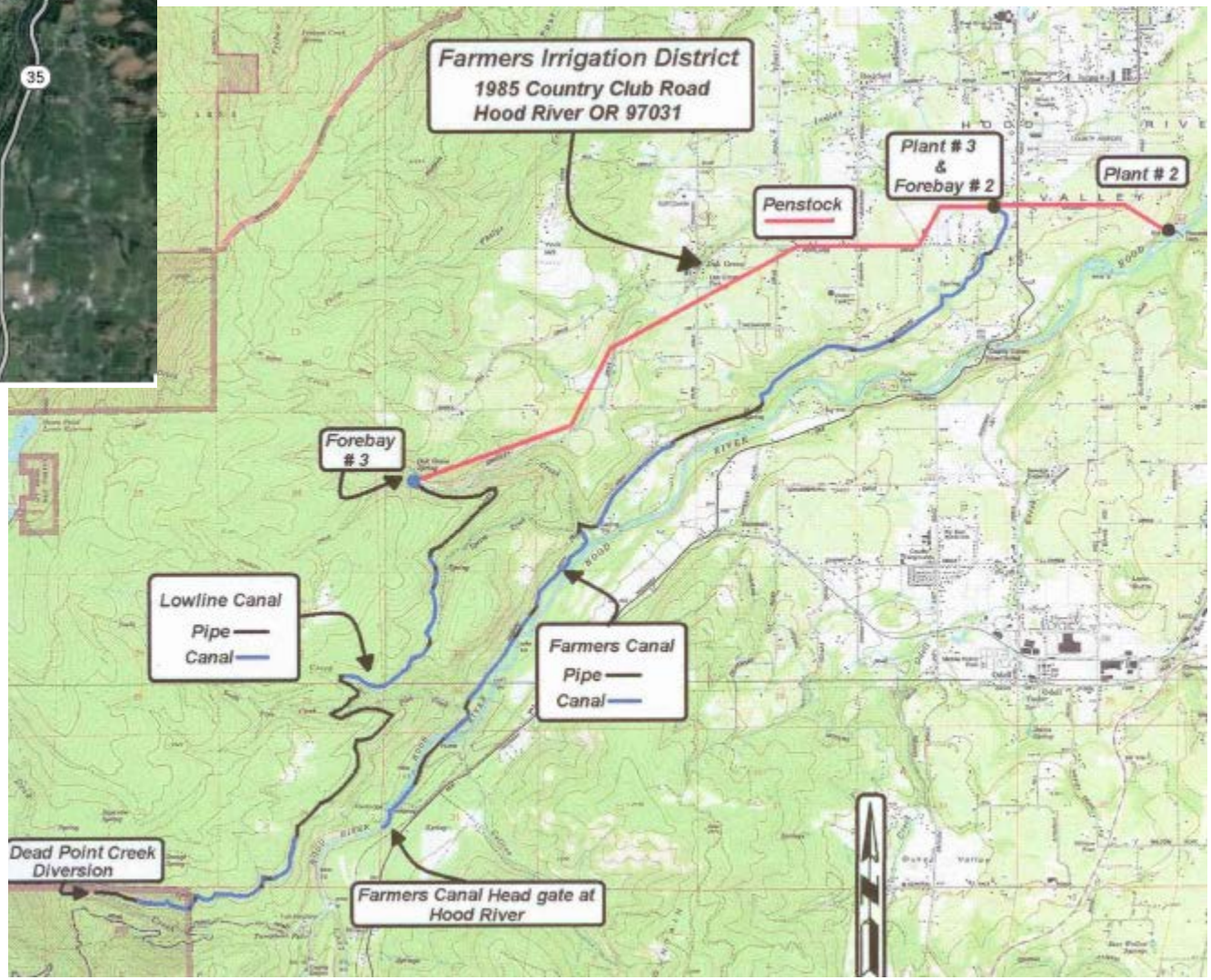
Project context

Detail about this project

Above-market cost evaluation

Proposed incentive and REC terms

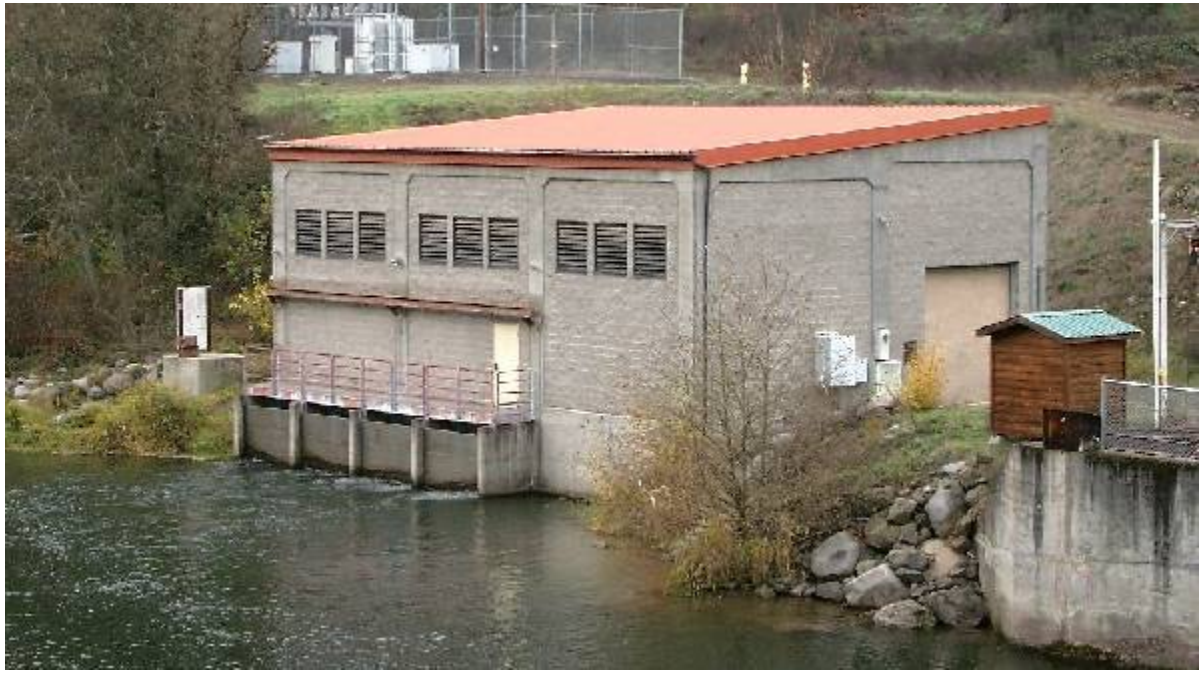

The Hook
30
84
Hood River
281
Hood River
35
Western Antique
Aeroplane and
Automobile
Musem (WAAAM)
A
Hood River
Golf Course
281


Farmers Irrigation District
1985 Country Club Road
Hood River OR 97031
Plant # 3
&
Forebay # 2
Plant # 2
Penstock
Forebay
3
Lowline Canal
Pipe
Canal
Farmers Canal
Pipe
Canal
Dead Point Creek
Diversion
Farmers Canal Head gate at
Hood River
N

Low Line Canal Piping Project - 2012

The project:

- Remove existing 1 & 2 MW Francis turbines, generators and controls.
- Upgrade with single 3 MW Gilkes Turgo turbine, generator and controls.



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

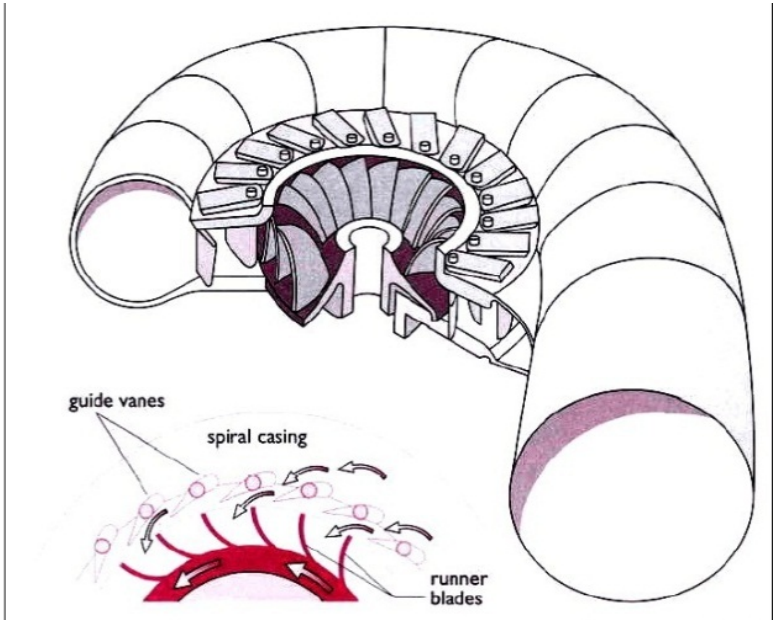
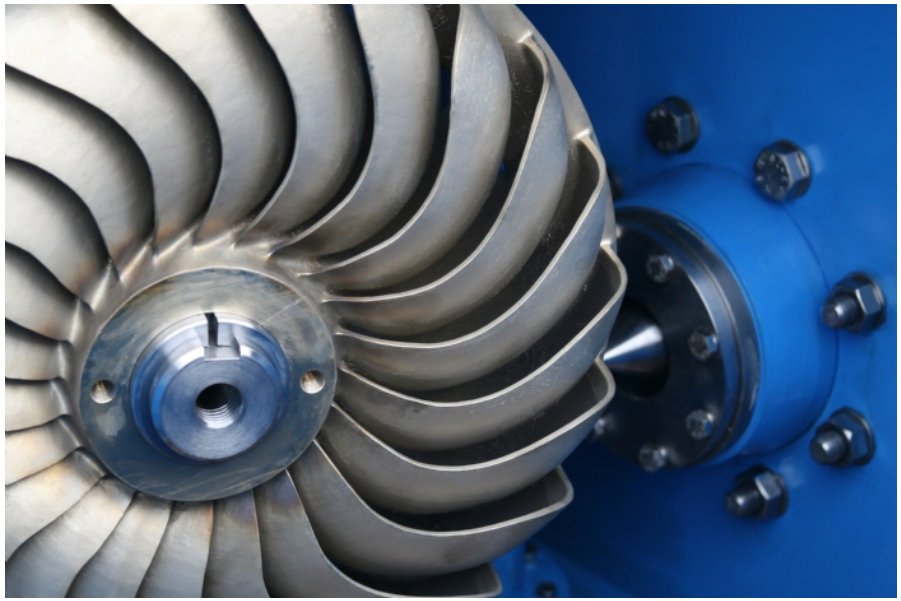


Figure 5.18 Francis turbine: (a) cut-away diagram; (b) flow across guide vanes and runner



Turgo

Review points

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Above-Market Cost Evaluation

Project Financial Summary - Present Value Basis - Evaluated over 20 years		
Revenues		
Power Sales	$	1,492,077
Reduced O&M expenses	$	844,011
NPV Total Revenues	**$**	**2,336,088**
Costs		
Equity	$	2,496,000
Principal and Interest Payments	$	1,434,645
NPV Total Project Cost	**$**	**3,930,645**
Above Market Cost (Revenues minus Costs)	**$**	**(1,594,557)**

Proposed Incentive

<u>Evaluation Criteria</u>

Project Term:	20 Years at 8% discount rate
Above-Market Cost (NPV):	$1,594,557

Proposed Incentive:	$825,000
Payment Terms:	Two payments of $412,500
NPV Incentive	$735,597, 52% of AMC
REC Allocation:	29,295 total (75% of expected generation)
REC Value:	$28.16
Energy Value:	$3.7MM per aMW

Comparison to past projects

Project		$ per aMW
COID Juniper Ridge Phase 1	$	652,028
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 JR2	$	3,012,812
FID Plant Two Repower	*$*	*3,700,460*
FID LDPP	$	3,767,742
Monroe Drop - Natel / NUID	$	4,184,713