

A FREE WIND TURBINE FOR ZORTMAN/LANDUSKY – WHAT COULD GO WRONG?



MINE DESIGN, OPERATIONS & CLOSURE CONFERENCE

MAY 1ST, 2014

**PRESENTED BY
WARREN McCULLOUGH
MONTANA DEQ
AND
BILL MAEHL
SPECTRUM ENGINEERING**

MONTANA DEQ'S FUNDING PARTNER
THE BUREAU OF LAND MANAGEMENT
SECURES \$3,000,000 UNDER A GRANT
ENTITLED RECOVERY ACT-ZORTMAN/
LANDUSKY MINE: WIND TURBINE FOR
POWER GENERATION IN MONTANA



ARRA

American Recovery and
Reinvestment Act of 2009

WIND TURBINE CONSTRUCTION COSTS

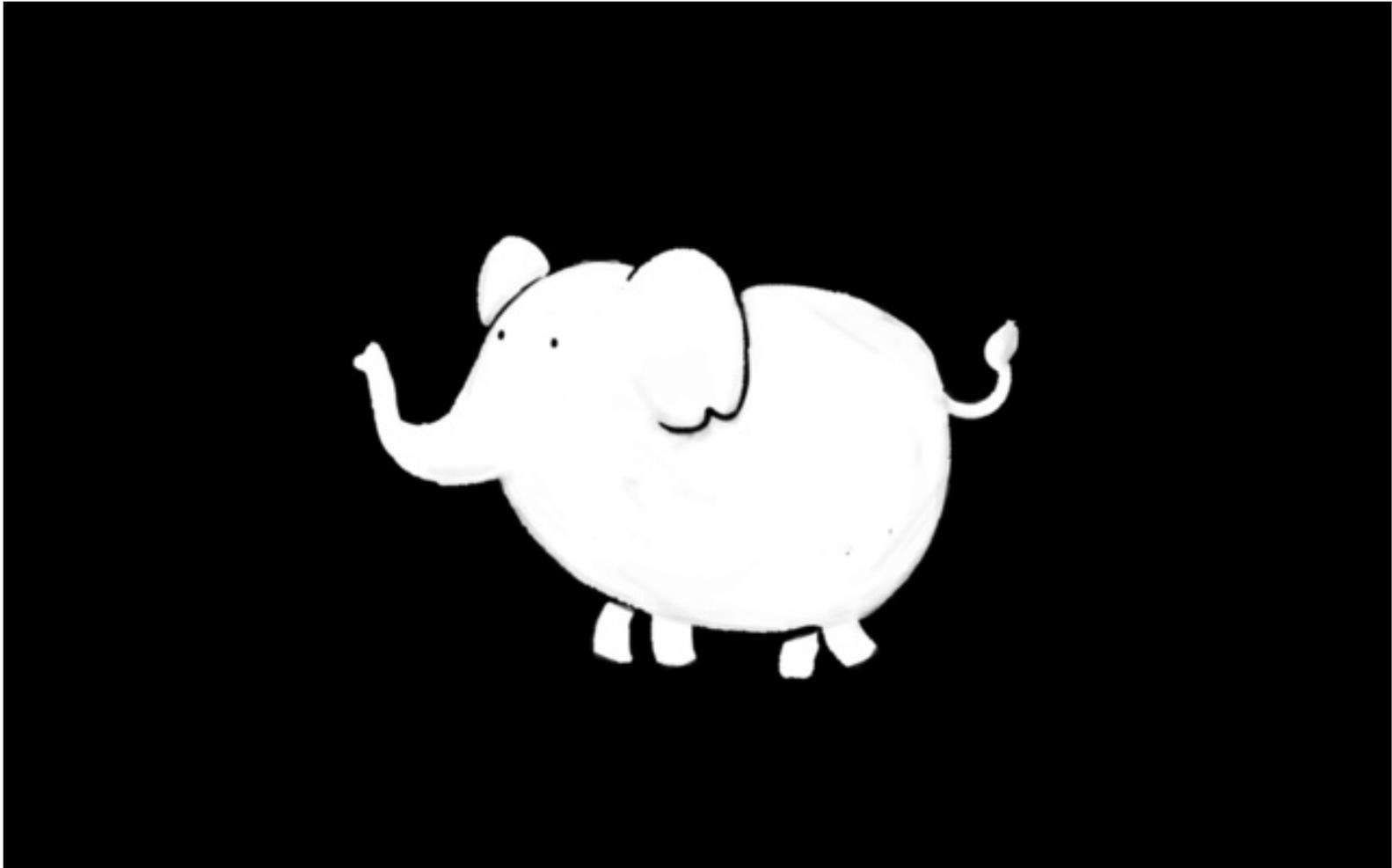
MOBILIZATION/DEMOBILIZATION	\$47,100
SUPPLY 225kW WIND TURBINE	\$575,800
SUPPLY 300 Kva TRANSFORMER	\$23,400
FOUNDATION	\$78,200
GROUNDING CABLE	\$59,357
DISTRIBUTION SWITCHGEAR, TESTING	\$57,337
CABLE TERMINATIONS	\$27,000
TOWER WIRING	\$22,700
COLD WEATHER PACKAGE	\$14,200
GEOTECHNICAL	\$12,500
TESTING OF INSTALLED SYSTEM	\$9,800
25kV PAD MOUNTED METERING UNIT	\$46,863
SITE ELECTRICAL	\$118,921
1ST YEAR MAINT. CONTRACT, CLIMBING GEAR	\$16,565
CONSTRUCTION OVERSIGHT, MISC.	<u>\$88,265</u>
TOTAL INSTALLED COST	\$1,198,007

THE REMAINDER OF THE \$3 MILLION NOT SPENT ON THE WIND TURBINE WAS USED TO COMPLETE NUMEROUS WORTHWHILE PROJECTS INCLUDING PLANT AUTOMATION, BIO PLANT UPGRADE, NEW SWIFT GULCH WATER TREATMENT PLANT, PURCHASE SLUDGE HANDLING EQUIP., ETC.



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TURBINE SITE PREPARATION BEGAN JULY 2012





EXTRA COMPACTION DUE TO TOP OF LEACH PAD LOCATION











08/04/2012























08/20/2012

**EXTRA GROUNDING CABLES ARE
REQUIRED DUE TO ATTEMPT TO ACHIEVE
3 OHMS MAX. FOR TOWER GROUNDING**





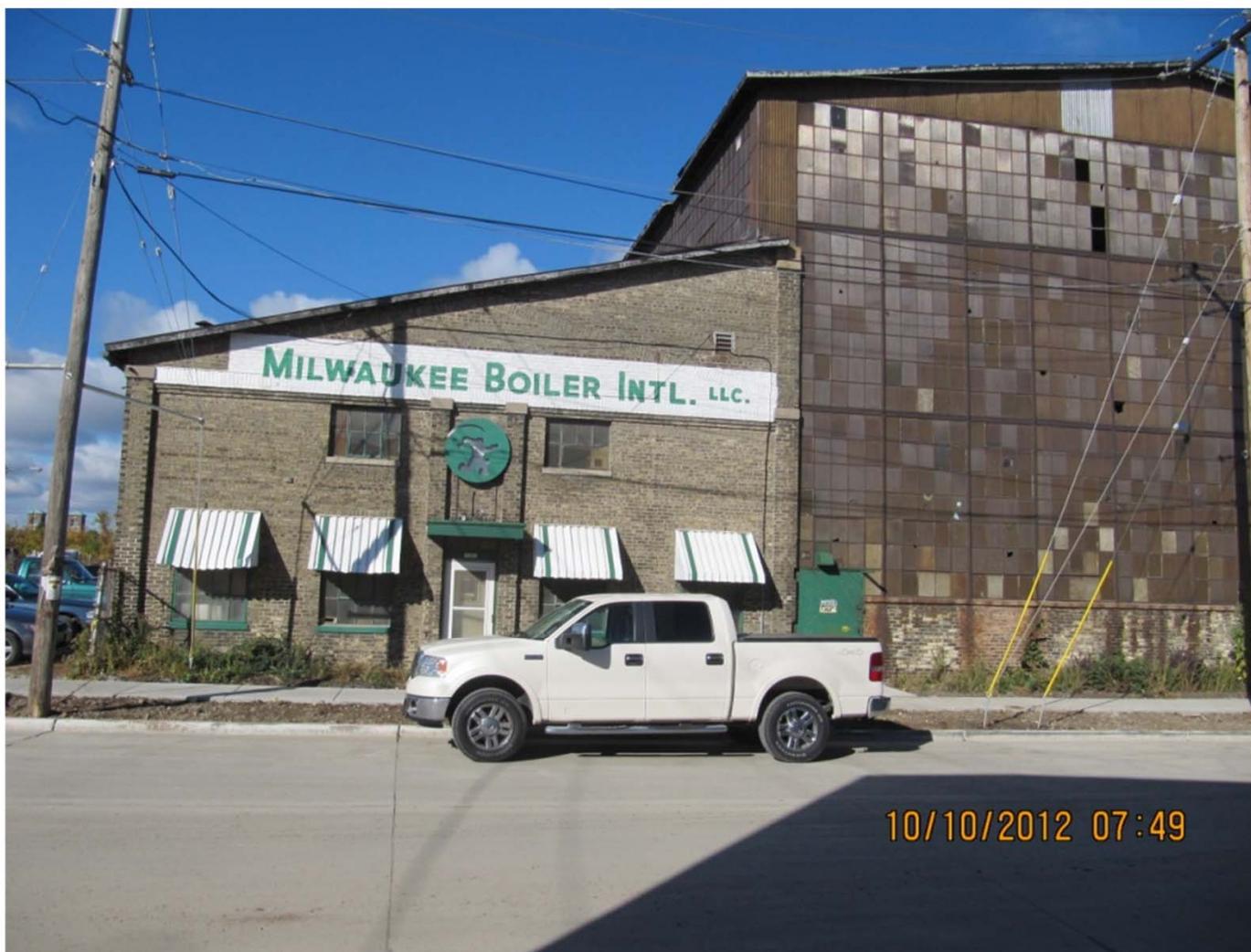
09/04/2012

GROUNDING





BLM VISITS TOWER MANUFACTURER TO DETERMINE REASON FOR DELAY



OPEN HEART SURGERY AND SOMETHING CALLED METRIC DIMENSIONS CAN BE DOUBLE-TROUBLE





10/26/2012





10/26/2012















10/29/2012









11/28/2012 14:07



11/28/2012 14:05





LANDUSKY WIND TURBINE

FIRST YEAR OF OPERATIONAL STATISTICS

DAYS OPERATED (Dec. 2012 - Nov. 2013)	192
DAYS NON-FUNCTIONAL	173
KWH GENERATION	123,276
KWH GENERATED PER DAYS OPERATED	642
KW GENERATION	1170
BIG FLAT ELECTRIC CREDIT (\$0.027/KWH)	\$3,328
MONEY OUT	
BIG FLAT ELECT. CHARGES (\$0.088/KWH)	\$2,612
REPAIRS (LIGHTNING TOOK OUT METER)	\$4,002
FIRST YEAR OPERATING LOSS	-\$3,286

LANDUSKY WIND TURBINE

SECOND YEAR'S 1ST 3 MONTHS OF OPERATION

DAYS OPERATED (Dec. 2013 - Feb. 2014)	77
DAYS NON-FUNCTIONAL	13
KWH GENERATION	76,771
KWH GENERATED PER DAYS OPERATED	997
KW GENERATION	390
BIG FLAT ELECTRIC CREDIT (\$0.027/KWH)	\$2,073
MONEY OUT	
BIG FLAT ELECTRIC CHARGES (\$0.088/KWH)	\$710
MAINTENANCE AGREEMENT, PHONE LINE	\$5,488
SECOND YEAR OPERATING LOSS TO DATE	-\$4,125

White elephant

From Wikipedia, the free encyclopedia

Not to be confused with [Elephant in the room](#).

For other uses, see [White elephant \(disambiguation\)](#).

The [British East Africa Company](#) came to regard Uganda as a white elephant when internal conflict broke out in 1892 and rendered the company ineffective in administration of the territory.

A **white elephant** is an [idiom](#) for a valuable but burdensome possession of which its owner cannot dispose and whose cost (particularly cost of upkeep) is out of proportion to its usefulness or worth. The term derives from the story that the kings of Siam (now [Thailand](#)) were accustomed to make a present of one of these animals to [courtiers](#) who had rendered themselves obnoxious, in order to ruin the recipient by the cost of its maintenance. In modern usage, it is an object, scheme, business venture, facility, etc., considered without use or value.^[1]

[Albino elephants](#) exist in nature, usually being a reddish-brown or pink color.



WIND TURBINE PROBLEMS

- **Project too small to get competitive bids (only 1 bid) to start.**
- **Net metering not allowed (paying \$0.088 per kWhr with Big Flat paying back \$0.027).**
- **Maintenance requires specialized expensive expertise.**
- **WAPA requires a \$98/month dedicated phone line.**

WIND TURBINE PROBLEMS

- Wind blows from different directions all the time, creating yawing errors. Only operated 9 days in March due to yawing.
- Machine guts from India and getting parts is problematic.
- Extra grounding problem to start with – fix was not enough to prevent lightning from destroying specialized expensive meter.

THANK YOU. ANY QUESTIONS ON WHAT A MONEY SINK LOOKS LIKE?



BEST GARAGE SALE EVER

coming soon...

