

Deer Creek Station Minnesota Power Systems Conference

Gavin McCollam November 9, 2016

Deer Creek Safety

	Final Statistics	Industry Average
Man-hours	1,161,273	
First Aid Incidents	86	
OSHA Recordable Incidents	13	
Recordable Incident Rate	2.24	3.80
Lost Time Incidents	1	
Lost Time Incident Rate	0.17	1.30





"The OPMS Steering Team cultivates a sustainable culture of proactive safety excellence through employee engagement, utilizing a process of continuous improvement to achieve zero incidents."





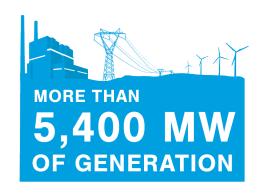








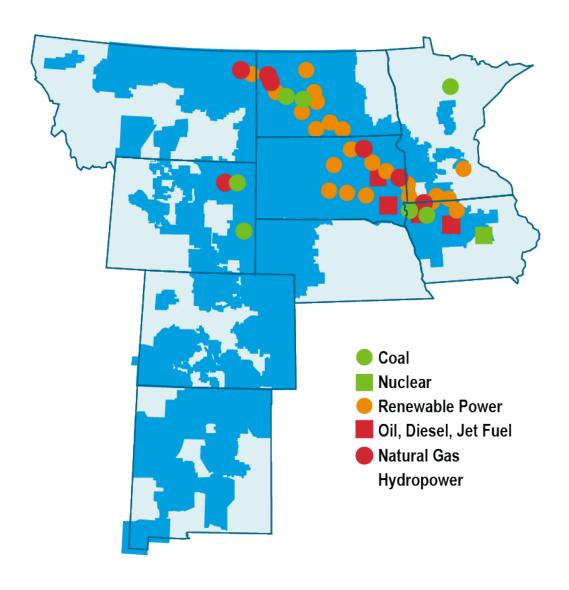


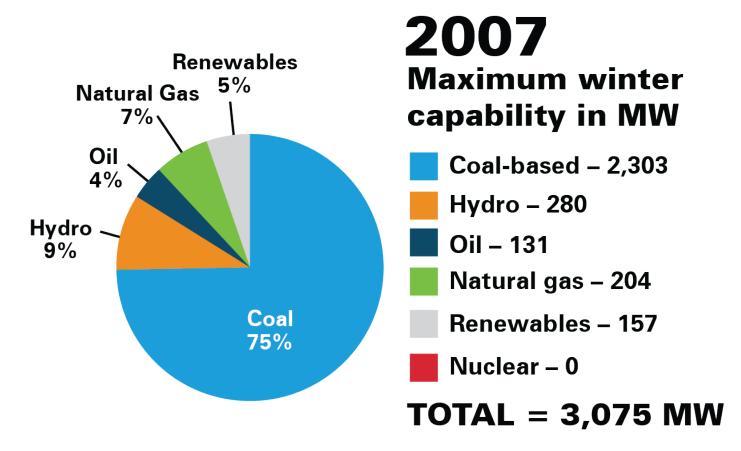


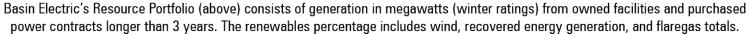




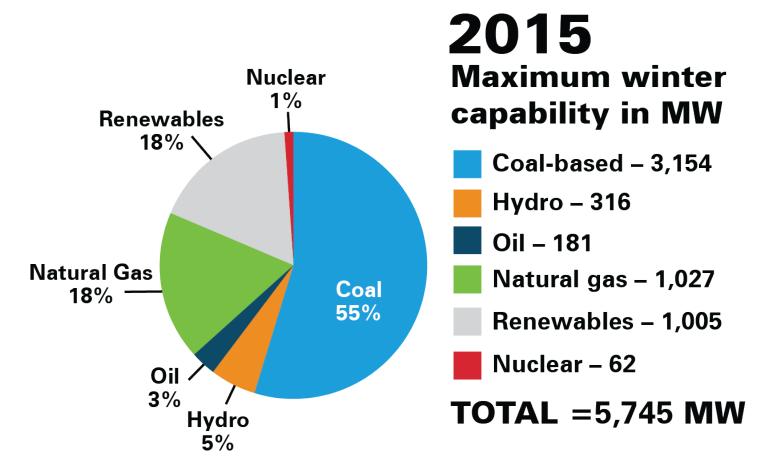


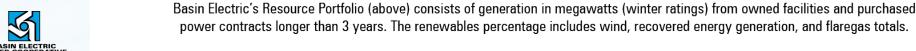














Engineering





Services





























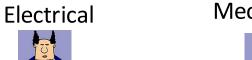


































































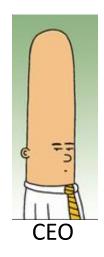








Engineering & Construction





Sr. VP E&C











Copyright Notice

We the People of the United States, in Order to form a more perfect Union, establish Justice, insure domestic Tranquility, provide for the common defence, promote the general Welfare, and secure the Blessings of Liberty to ourselves and our Posterity, do ordain and establish this Constitution for the United States of America. Article, I.Section. 1. All legislative Powers hereing annets shall be vested in a Congress of the United States, which shall consist of a Sense and House of Representatives shall be composed of Members chosen every second Year by the People of the several States, and the Electors in each State shall have the Qualifications requisite for Electors of the most numerous Branch of the State Legislature. No Personshall be a Representative who shall not have attained to the Age of twenty five Years, and been several States which may be included within this Union, according to their respective Numbers, which shall be determined by adding to the whole Number of free Persons, including those bound to Service for a Term of Years, and excluding indians not taxed, three fifths of all other Persons. The actual Enumeration shall be made within three Years and the first Redefing of the Congress of the United States, and within every subsequent. Term of ten 1 ears, in such Manner as they shall by Law direct. The Number of Representatives shall not exceed one for every thirty Thousand, but each State shall shall have at Least one Representatives, and until such enumeration shall be made, the State of New Hampshire shall be entitled to chuse three, Massachusetts eight, Rhode-Island and Providence Plantations one, Connecticat five, New-York six, New Jersey four, Permsylvania eight, Delaware one, Maryland six, Virgina ten, North Carolina five, and George dar each When vacancies happen in the Representation from any State, the Executive Authority there of shall be save Writes of Election to fill such Vascancies. The Houses of Representations shall chave the sole Power of Impactment. Section. 3 The Sents of the Exercise of the Sentators of the first Class shall be vacated at the Expiration of the second Class at the Expiration of the fourth Year, and of the third Class at the Expiration of the second one Votal Immediately after they shall be assembled in Consequence of the first Election, they shall be divided as explaints on three Classes. The Seats of the Sentators of the first Class set the Expiration of the sector Verar, and the territ of the process over yes excent Class at the Expiration of the sector of the Interest Class shall be received the Class at the Expiration of the sector of the Verar, and the net of the Verar, and the net of the Class at the Expiration of the sector of the Verar, and the net of the Verar, and the net of the Verar, and the net of the Verar, and been nine Year's a Citizen of the United States, and who shall not, when elected, be an inhall be chosen. 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Section 10.NO State shall enter into any Tracey, Alliance, or Confederation; grant Latters of Marque and Reprisal; confident may represent the Conservation of the United States; and all such Laws shall be subject to the Revision for the United States; and all such Laws shall be subject to the Revision for the United States; and all such Laws shall be subject to the Revision for the United States; and all such Laws shall be subject to the Revision for the United States; and all such Laws shall be subject to the Revision for the United States; and all such Laws shall be subject to the Revision for the United States; and all such Laws shall be subject to the Revision for the United States; and all such Laws shall be subject to the Revision for the United States; and all such Laws shall be subject to the Revision for the United States; and the United States of Marerica. 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Copyright Notice

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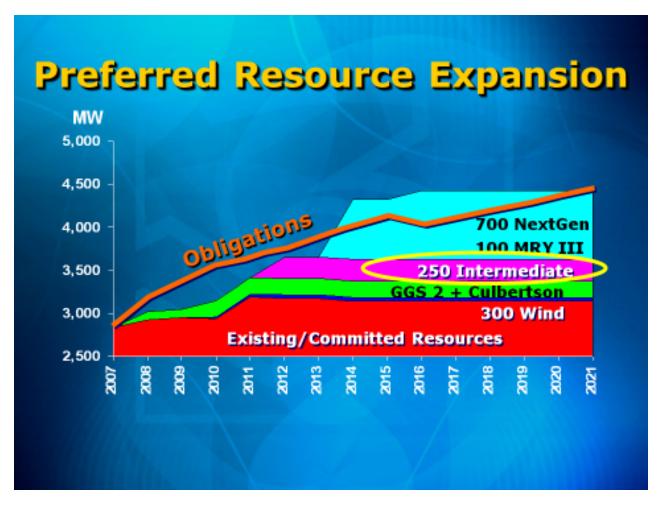
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Flashback 2007





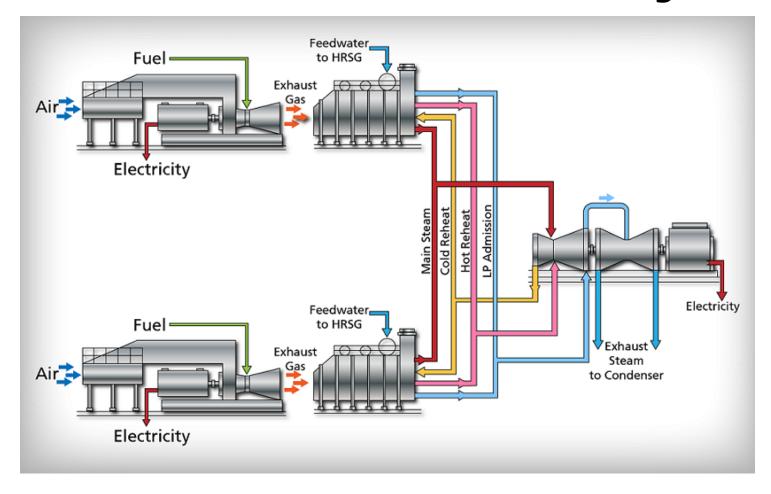
Deer Creek Station

- Elkton, SD
- 1x1 Natural Gas Combined Cycle
- Nominal 300MW incl. Duct Firing
- ~ \$362.0 MM Budget
- Construction Start: July 27, 2010
- August 2012 COD
- Major Contracts
 - General Electric
 - Alstom
 - Nooter Erikson
 - SPX
 - Sargent & Lundy
 - Boldt Construction





Natural Gas Combined Cycle







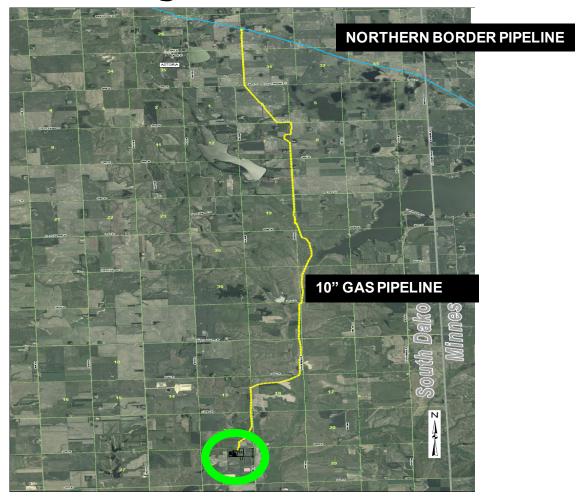
Major Equipment







Project Location





Deer Creek Site



Environmental/Permitting

- Environmental Impact Statement
 - Federal Agencies Western / RUS
 - 3rd Party EIS Consultant Burns & McDonnell
 - Kickoff Dec 11, 2008
 - Final Record of Decision July 27, 2010
- Air Permit
 - Submitted Mid May 2009
 - Permitting Assistance Sargent & Lundy
 - Permit Received June 29, 2010
- SD State PUC Siting Permit
 - Notice of Intent filed Dec 22, 2008
 - Permitting Assistance EDAW
 - Permit Received May 18, 2010
- County Conditional Use Permits



Topeka Shiner (Notropis topeka) (minnow)



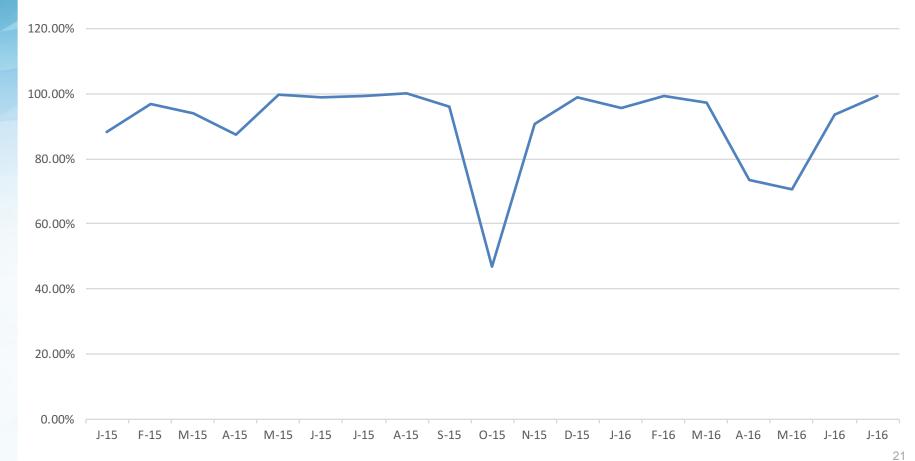
General Works Contract

- Early Execution to Allow for Pre-Constructability Phase
- Cost Reimbursable With Target
- "True-ups" to Adjust Target for Quantity Changes as Design Progressed
- Profit / Loss Sharing Agreements
- Final Cost approximately \$120 MM



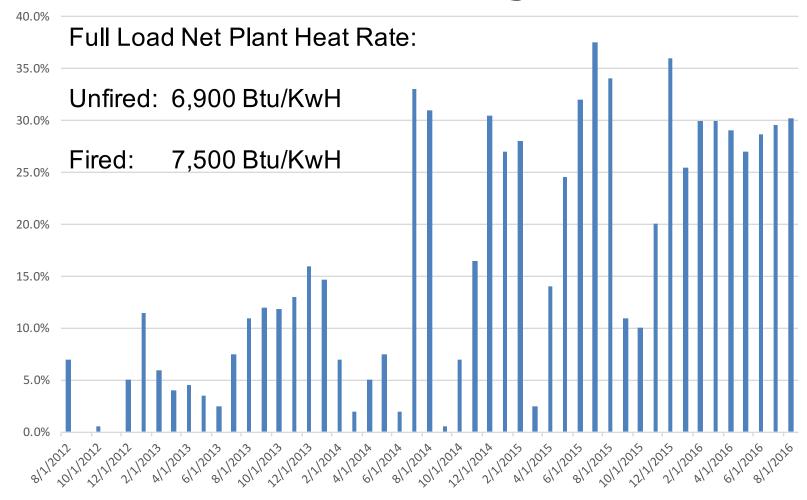


Plant Availability





Plant Capacity Factor





Misses

- Access
- Auxiliary Boiler
- Waste Water Cooling Tower
- Winterization, Winterization, Winterization





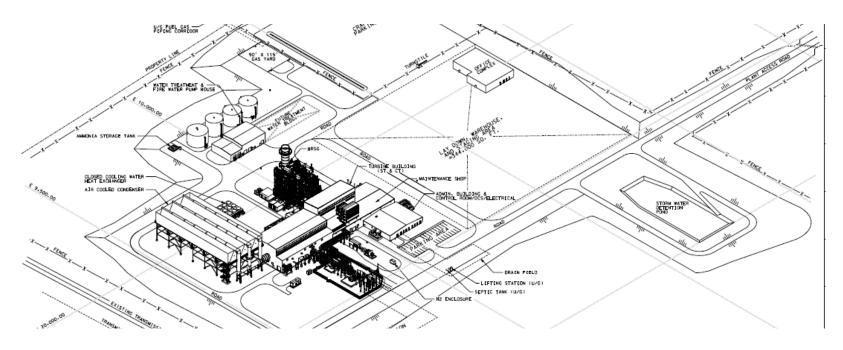
Access







No Auxiliary Boiler





Waste Water Cooling Tower





• $-41^{\circ} F = -41^{\circ} C$



- $-41^{\circ} F = -41^{\circ} C$
- Hot Water to Ice





- $-41^{\circ} F = -41^{\circ} C$
- Hot Water to Ice
- Time Travel



- $-41^{\circ} F = -41^{\circ} C$
- Hot Water to Ice
- Time Travel
- Deer Creek Winter Design Temperature



Winterization

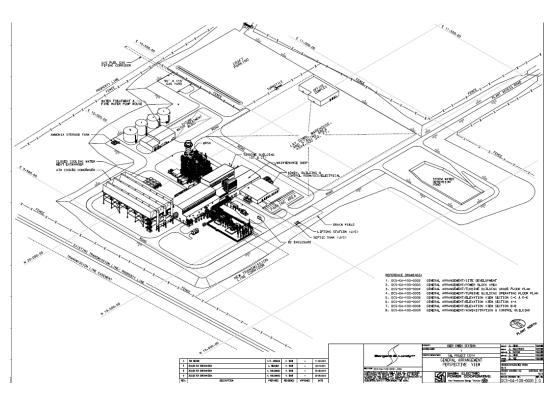
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Hits

- Site Layout / Laydown Area
- Overhead Cranes / Truck Bays
- Field Office Building
- HRSG Elevator



Site Layout/Laydown Area









Overhead Cranes/Truck Bays







Field Office Building



HRSG Elevator







Aerial Photographs

Courtesy of Dakota Aerials http://www.dakotaaerials.com/

Dave Tunge 262 Lewis and Clark Trail Yankton, South Dakota 57078 1-800-888-1439











20/20 Hindsight...

HRSG/Pipe Rack Building



- Capital Project Approved October 2015
- ~\$22.0 MM
- Scheduled Completion Spring 2017





Deer Creek Station



Gavin McCollam gmccollam@bepc.com 701-557-5770

