



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.”



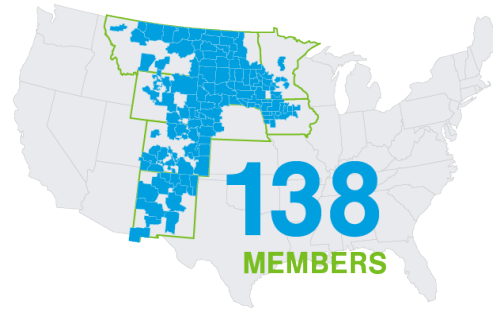
Basin Electric is a member-owned and controlled wholesale power supply cooperative



MEMBER OWNED



MEMBER DRIVEN

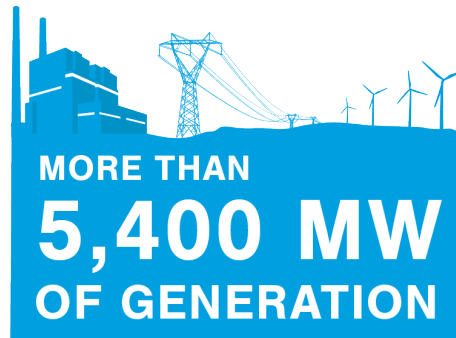


138
MEMBERS

\$6.1 BILLION
IN TOTAL
ASSETS



MORE THAN
2,200 EMPLOYEES

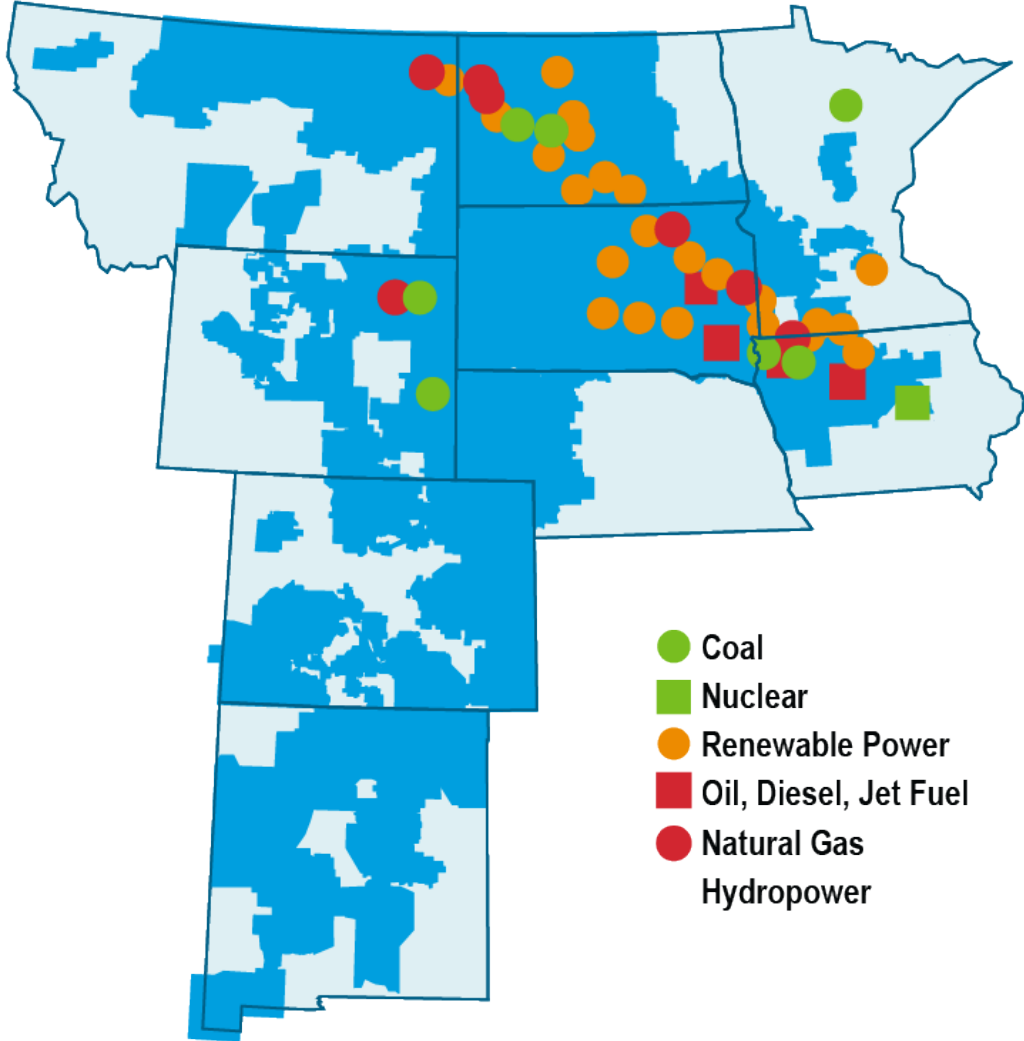


MORE THAN
5,400 MW
OF GENERATION

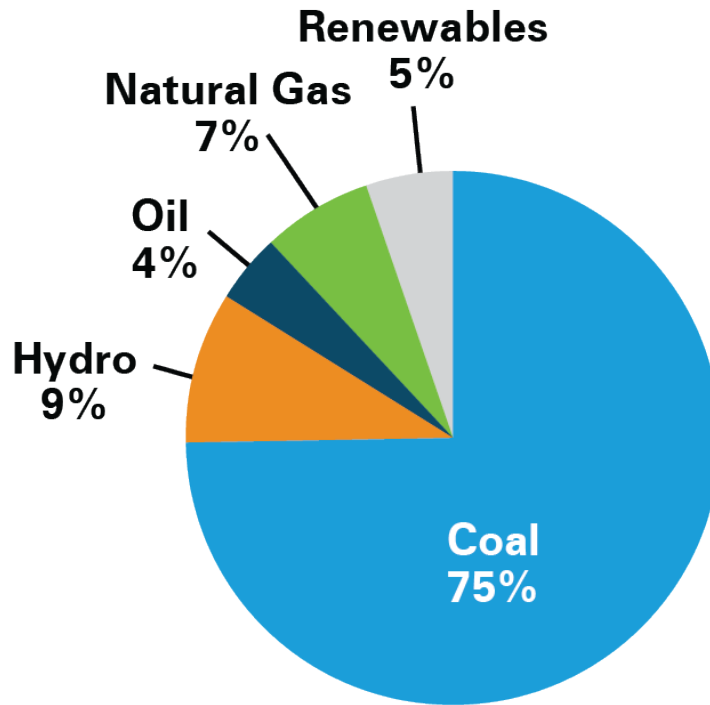
SERVING MORE THAN
2.8 MILLION



CONSUMERS



2007 Maximum winter capability in MW

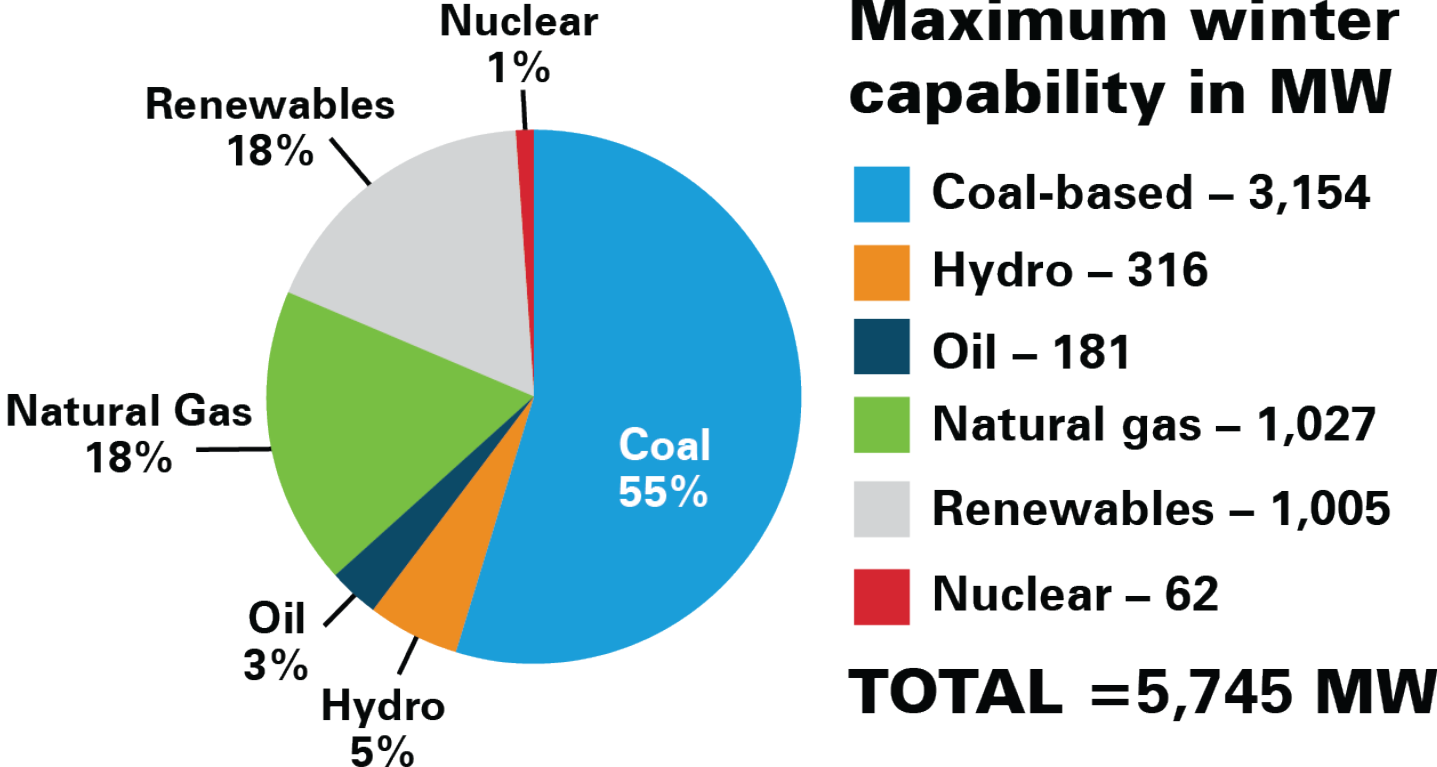


Coal-based	– 2,303
Hydro	– 280
Oil	– 131
Natural gas	– 204
Renewables	– 157
Nuclear	– 0

TOTAL = 3,075 MW

Basin Electric's Resource Portfolio (above) consists of generation in megawatts (winter ratings) from owned facilities and purchased power contracts longer than 3 years. The renewables percentage includes wind, recovered energy generation, and flare gas totals.

2015 Maximum winter capability in MW



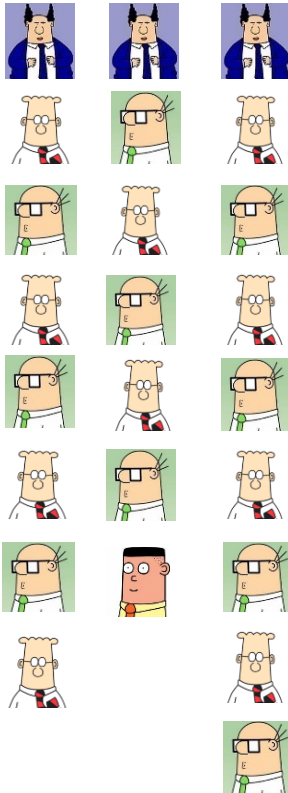
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Engineering



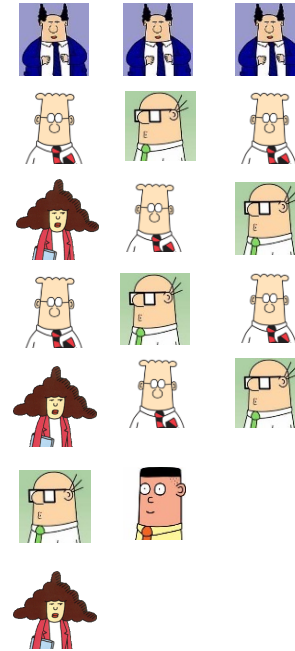
Electrical



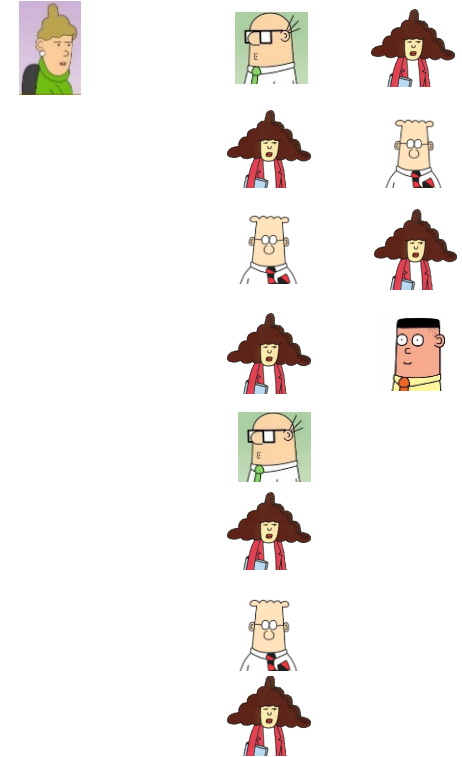
Mechanical



Civil

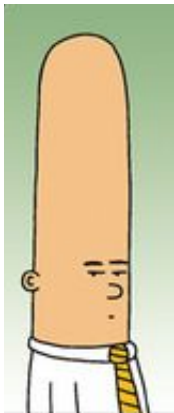


Drafting



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Engineering & Construction



CEO



Sr. VP E&C



Engineering



Proj Mgmt



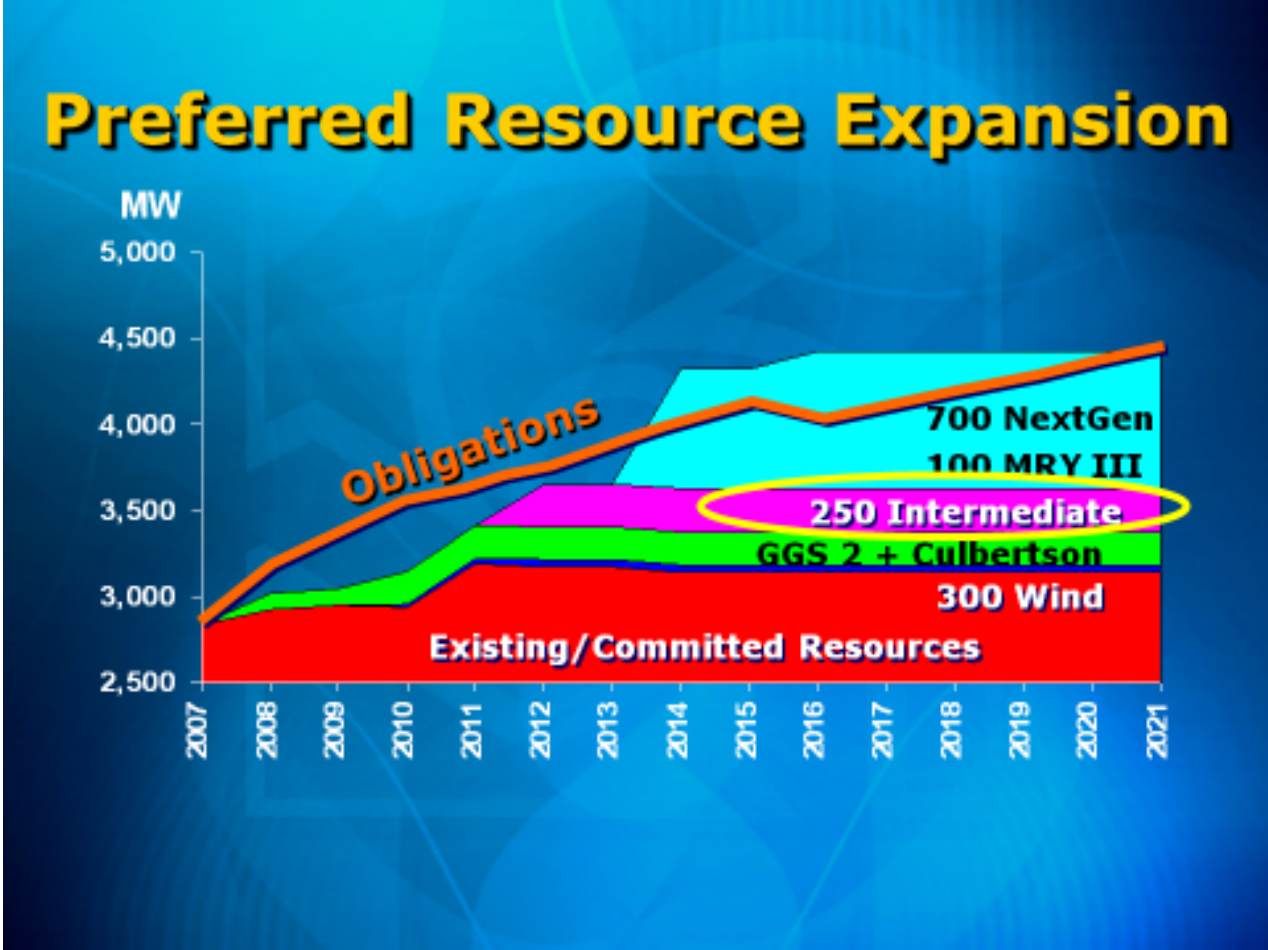
Environmental



Right-of-Way¹⁰



Flashback 2007

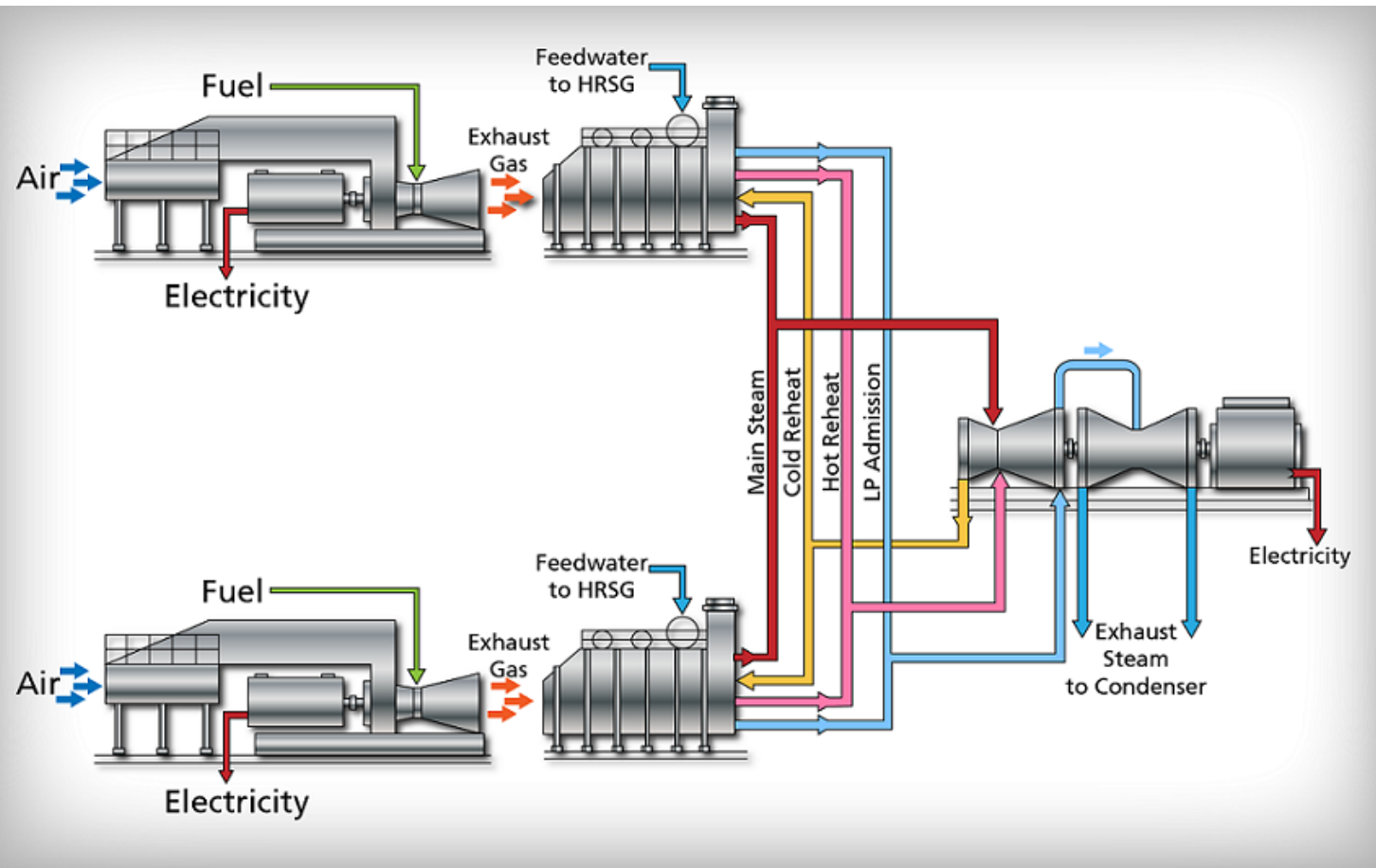


Deer Creek Station

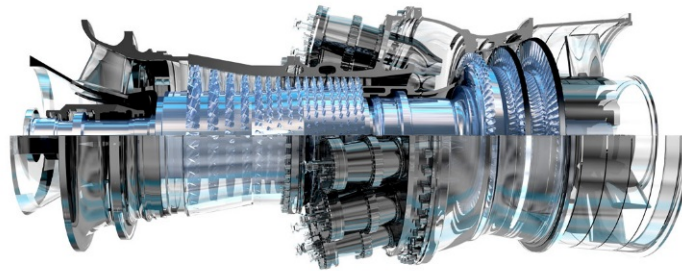
- Elkton, SD
- 1x1 Natural Gas Combined Cycle
- Nominal 300MW incl. Duct Firing
- ~ \$362.0 MM Budget
- Construction Start: July 27, 2010
- August 2012 COD
- Major Contracts
 - General Electric
 - Alstom
 - Nooter Erikson
 - SPX
 - Sargent & Lundy
 - Boldt Construction



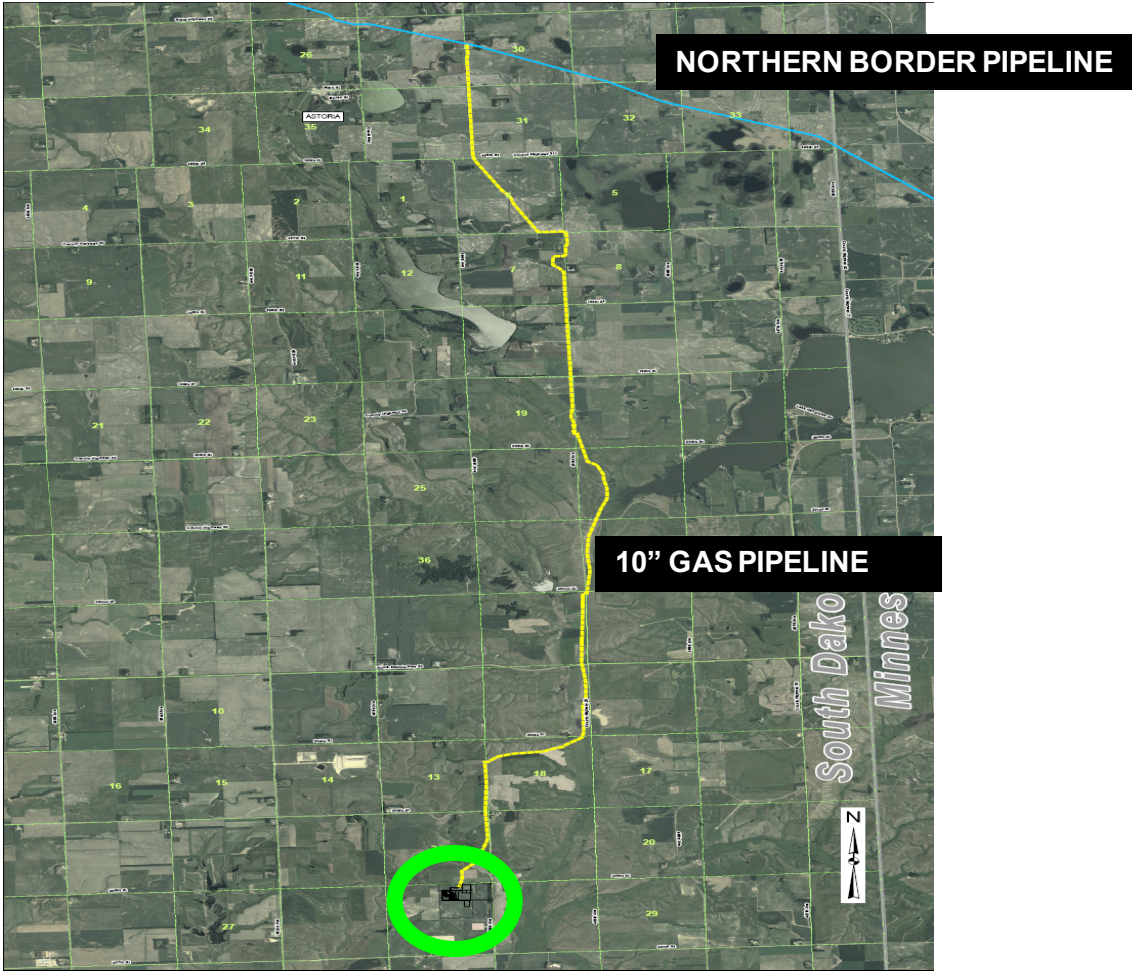
Natural Gas Combined Cycle



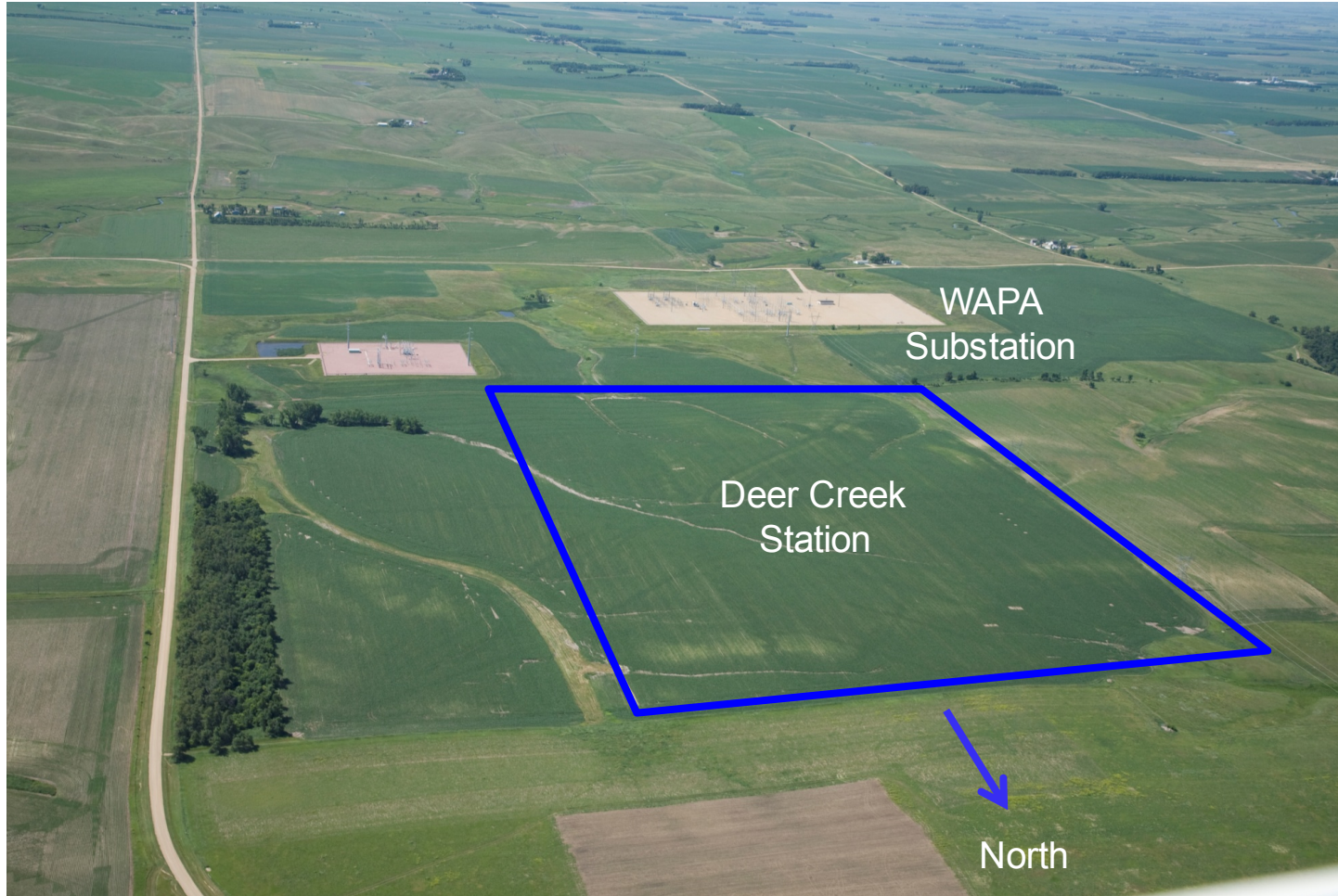
Major Equipment



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

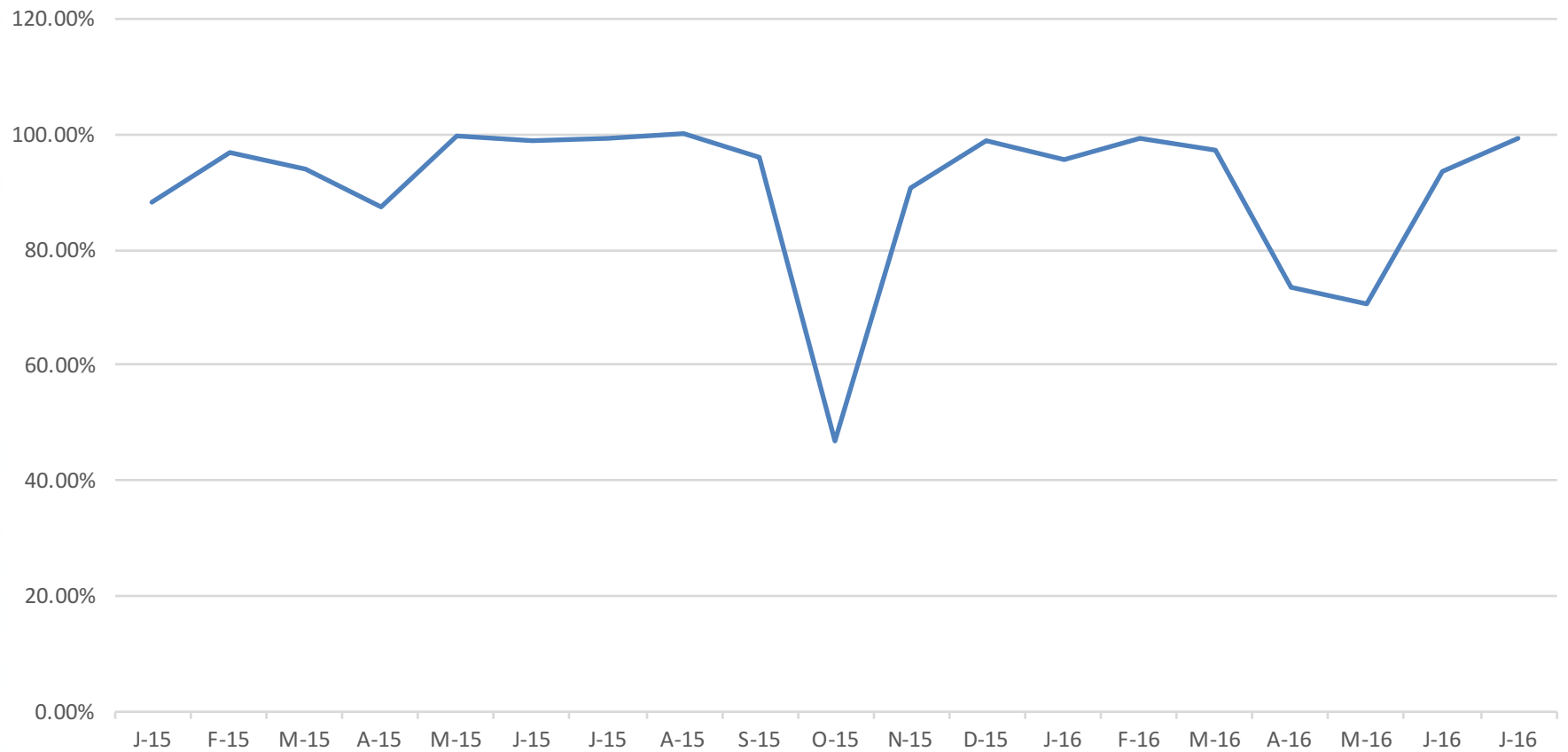


Topeka Shiner
(*Notropis topeka*)
(minnow)

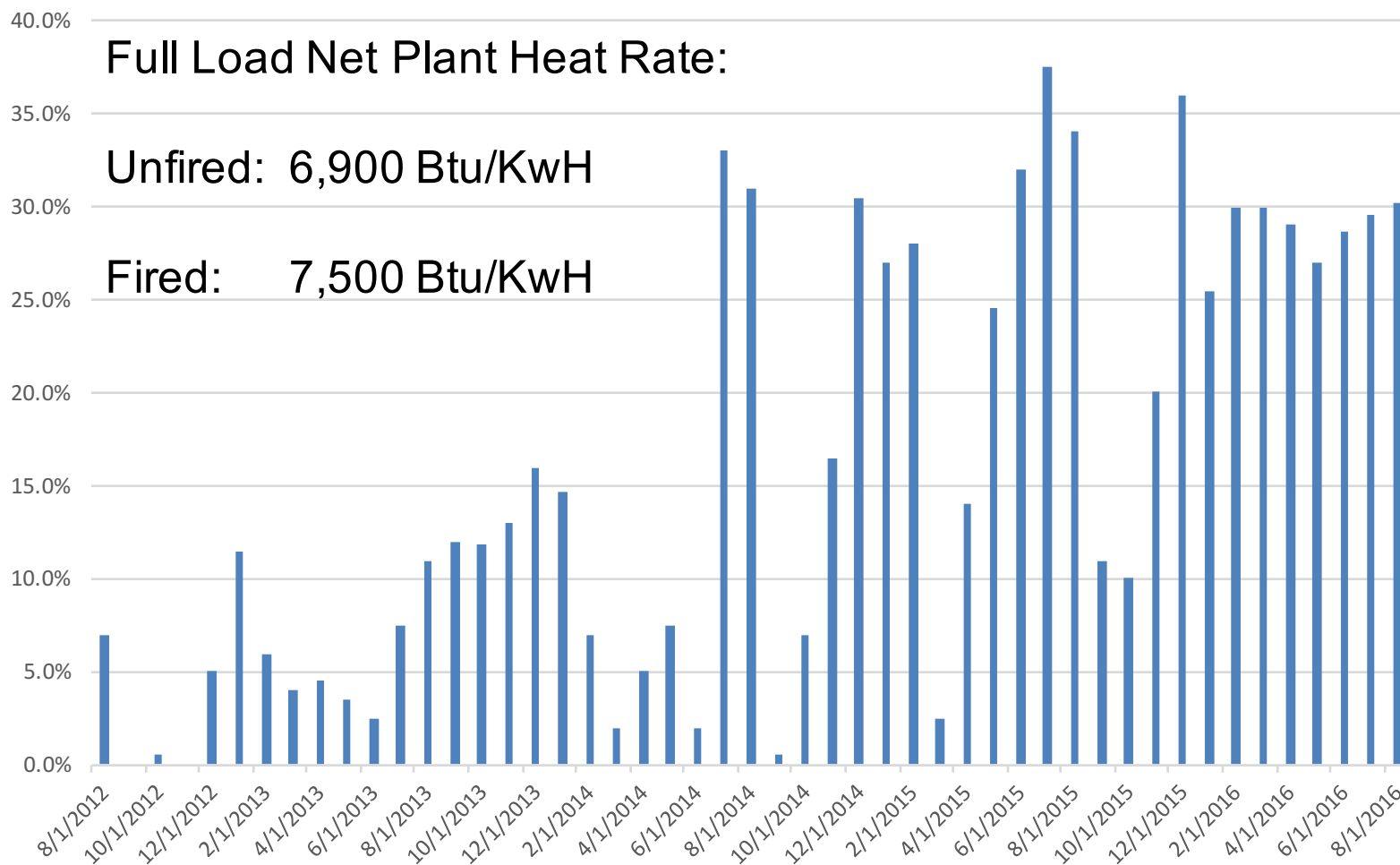
General Works Contract

- 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



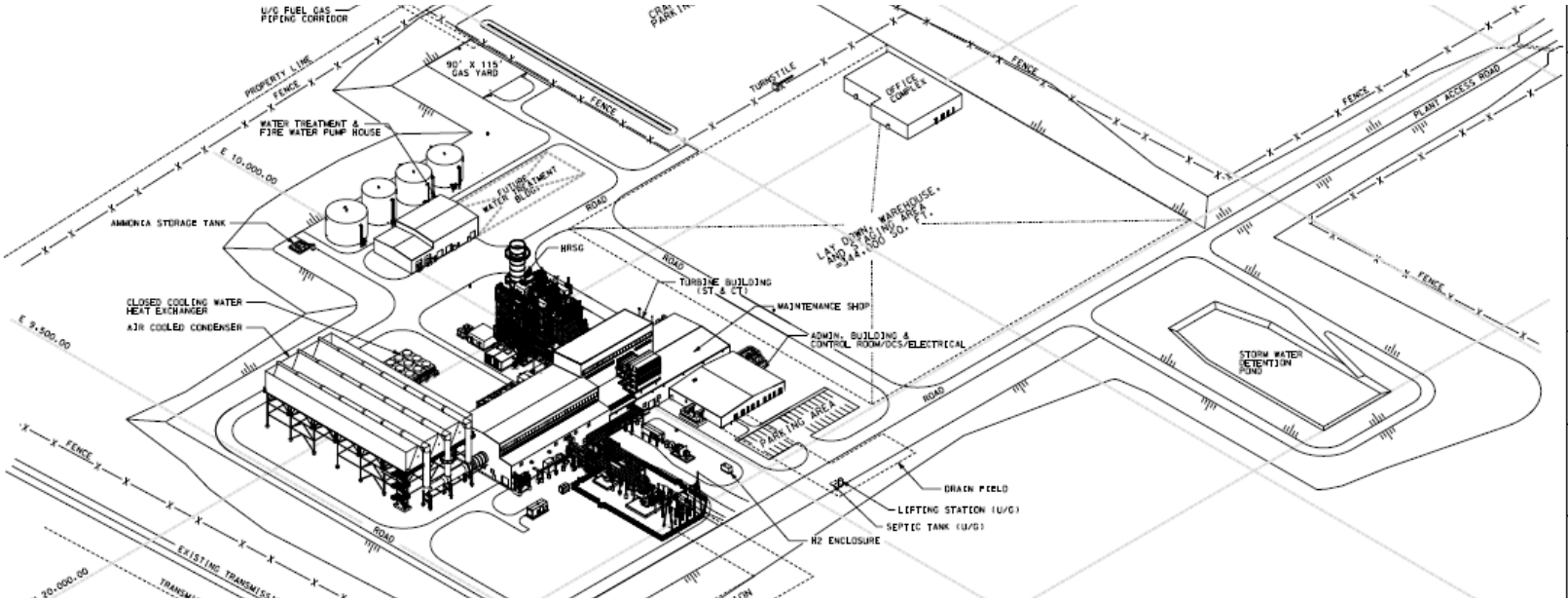
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Access



No Auxiliary Boiler



Waste Water Cooling Tower



Little Known Facts About -41°F

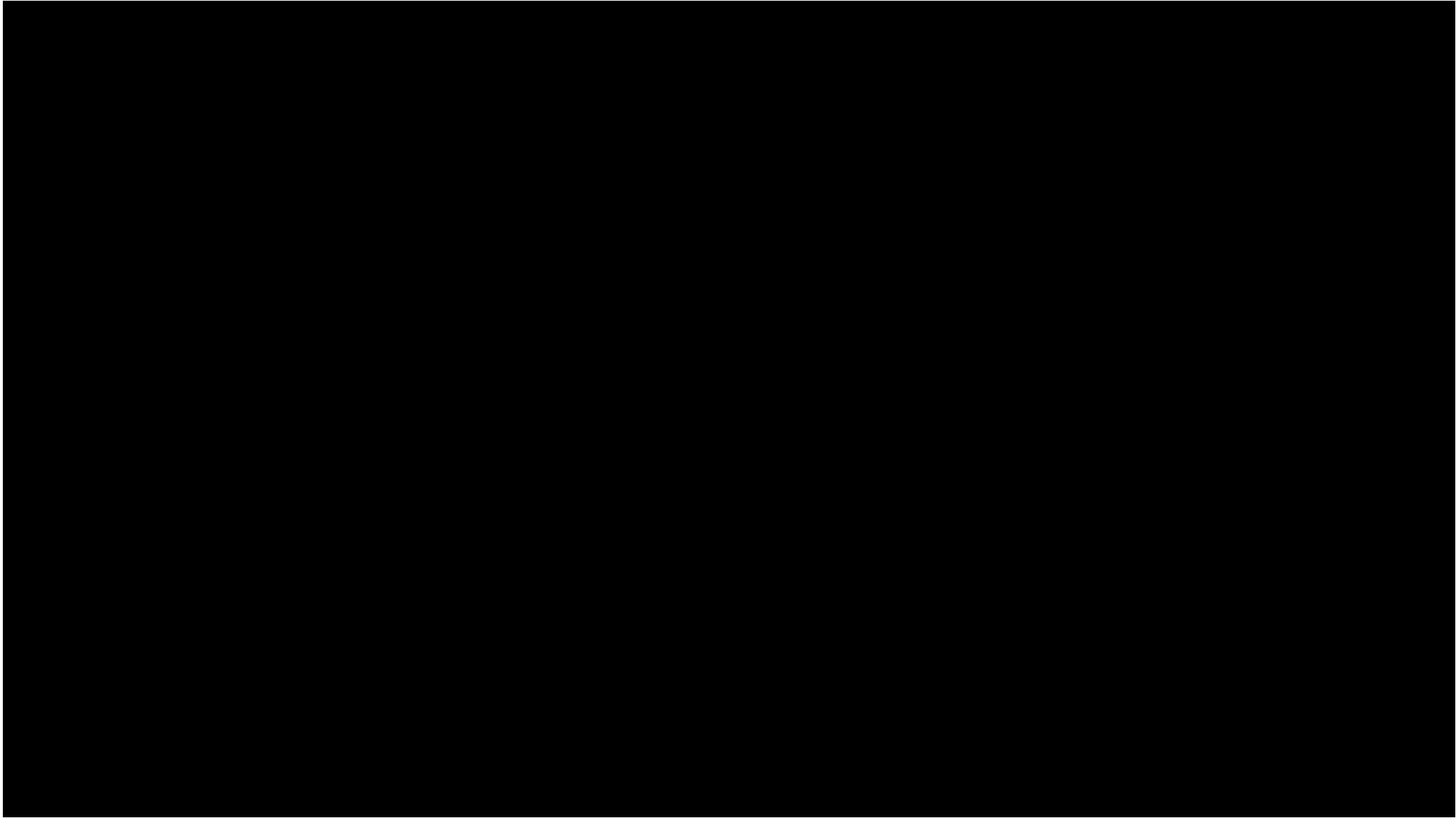
- $-41^{\circ}\text{F} = -41^{\circ}\text{C}$



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Little Known Facts About -41°F

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



Little Known Facts About -41° F

- -41° F = -41° C
- Hot Water to Ice
- Time Travel



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Little Known Facts About -41° F

- -41° F = -41° C
- Hot Water to Ice
- Time Travel
- Deer Creek Winter Design Temperature



Winterization

Winterization Winterization Winterization
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Hits

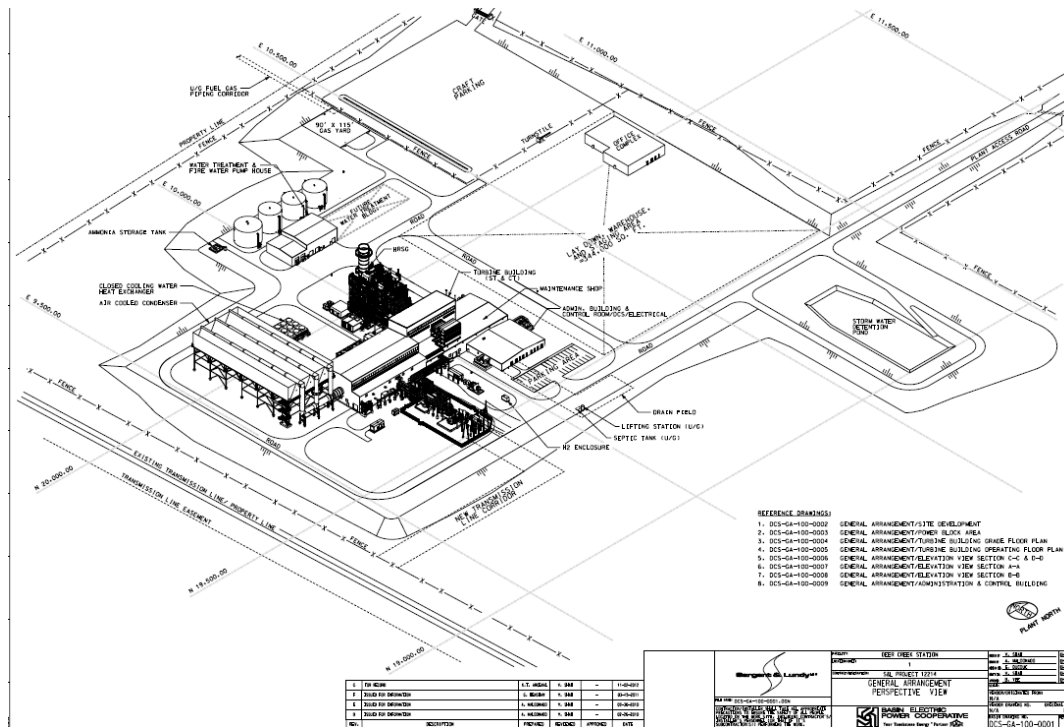
- Site Layout / Laydown Area
- Overhead Cranes / Truck Bays
- Field Office Building
- HRSG Elevator



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Site Layout/Laydown Area



Overhead Cranes/Truck Bays



Field Office Building



HRSG Elevator



Aerial Photographs

Courtesy of Dakota Aerials

<http://www.dakotaaerials.com/>

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20/20 Hindsight...



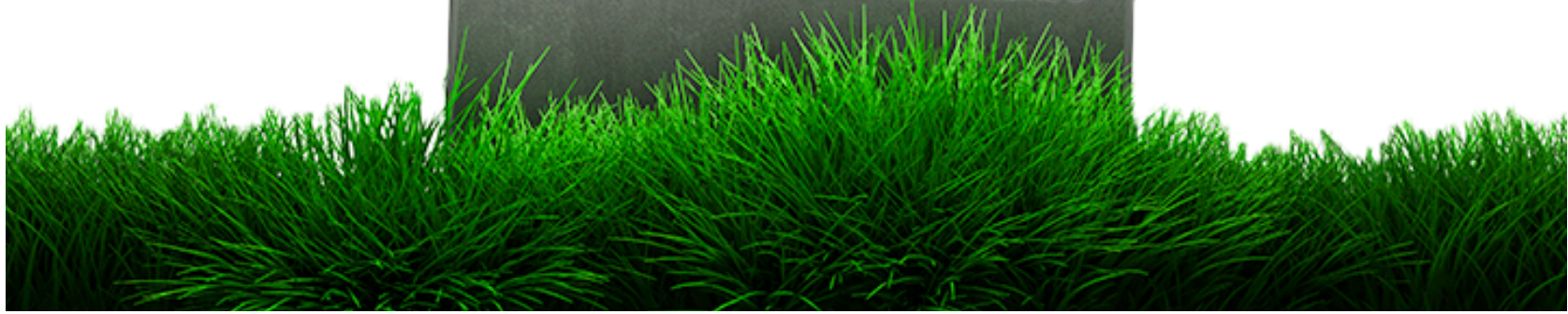
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HRSG/Pipe Rack Building



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



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