



414 Nicollet Mall  
Minneapolis, MN 55401

December 13, 2013

— VIA E-MAIL & FEDERAL EXPRESS —

Darrell Nitschke  
Executive Secretary  
North Dakota Public Service Commission  
State Capitol Building  
600 East Boulevard, Dept. 408  
Bismarck, ND 58505-0480

RE: EXHIBIT NSPM-6  
Application for Advanced Determination of Prudence and  
Certificate of Public Convenience and Necessity  
CASE NOS. PU-13-194, PU-13-195

Dear Mr. Nitschke:

During the hearing, PVRR charts and tables were requested. The requested information was identified for the record and pre-admitted as a “late-filed exhibit”. We submit Exhibit NSPM-6 as follows:

Ex. NSPM-6            Wishart Direct Testimony –  
Revised Charts and Tables

Please contact me if you have any questions regarding the information included in Exhibit NSPM-6. I can be reached at [alison.c.archer@xcelenergy.com](mailto:alison.c.archer@xcelenergy.com) or 612-215-4662.

Sincerely,

ALISON C. ARCHER  
ASSISTANT GENERAL COUNSEL  
NORTHERN STATES POWER COMPANY

Enclosures

**Table 5 – Strategist Top 20 Proposal Combinations (PVRR)**

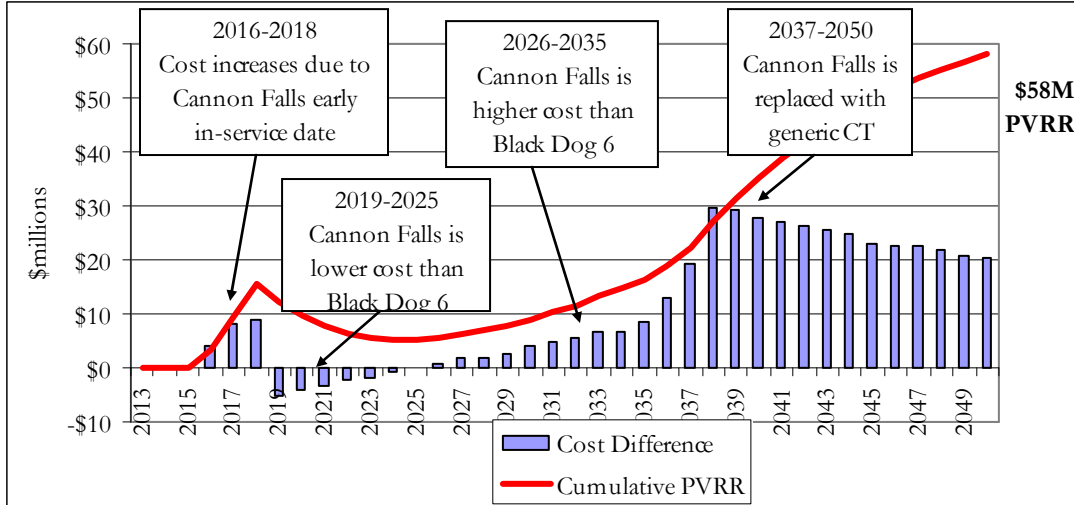
	<b>Selected Bids</b>	<b>Total Long Term Capacity</b>	<b>2013-2050 PVRR \$millions</b>	<b>Difference From Plan 1</b>
<b>Plan 1</b>	Invenergy Cannon Falls - 2016 - 150MW Black Dog 6 - 2018 - 208MW	358 MW	\$39,158	
<b>Plan 2</b>	Calpine Mankato - 2017 - 278MW Black Dog 6 - 2019 - 208MW	486 MW	\$39,180	+ \$22.5
<b>Plan 3</b>	GRE Short Term - 2016 - 100MW Red River Valley 1 - 2018 - 208MW Black Dog 6 - 2019 - 208MW	416 MW	\$39,161	+ \$3.1
<b>Plan 4</b>	Invenergy Cannon Falls - 2016 - 150MW GRE Short Term - 2016 - 100MW Black Dog 6 - 2019 - 208MW	358 MW	\$39,162	+ \$4.4
<b>Plan 5</b>	Black Dog 6 - 2017 - 208MW Red River Valley 1 - 2018 - 208MW	416 MW	\$39,168	+ \$10.3
<b>Plan 6</b>	Calpine Mankato - 2017 - 278MW Black Dog 6 - 2018 - 208MW	486 MW	\$39,188	+ \$30.4
<b>Plan 7</b>	GRE Short Term - 2016 - 100MW Black Dog 6 - 2018 - 208MW Red River Valley 1 - 2018 - 208MW	416 MW	\$39,169	+ \$11.1
<b>Plan 8</b>	Invenergy Cannon Falls - 2016 - 150MW Black Dog 6 - 2017 - 208MW	358 MW	\$39,169	+ \$11.3
<b>Plan 9</b>	Invenergy Cannon Falls - 2016 - 150MW GRE Short Term - 2016 - 100MW Black Dog 6 - 2018 - 208MW	358 MW	\$39,170	+ \$12.4
<b>Plan 10</b>	GRE Short Term - 2016 - 100MW Calpine Mankato - 2017 - 278MW Black Dog 6 - 2019 - 208MW	486 MW	\$39,192	+ \$34.8
<b>Plan 11</b>	GRE Short Term - 2016 - 200MW Red River Valley 1 - 2018 - 208MW Black Dog 6 - 2019 - 208MW	416 MW	\$39,175	+ \$17.7
<b>Plan 12</b>	Invenergy Cannon Falls - 2016 - 150MW Red River Valley 1 - 2018 - 208MW Black Dog 6 - 2019 - 208MW	566 MW	\$39,177	+ \$19.6
<b>Plan 13</b>	Invenergy Cannon Falls - 2016 - 150MW GRE Short Term - 2016 - 200MW Black Dog 6 - 2019 - 208MW	358 MW	\$39,176	+ \$18.9
<b>Plan 14</b>	Calpine Mankato - 2017 - 278MW Black Dog 6 - 2017 - 208MW	486 MW	\$39,199	+ \$41.7
<b>Plan 15</b>	Invenergy Hampton Corners - 2016 - 300MW Black Dog 6 - 2019 - 208MW	508 MW	\$39,178	+ \$20.9
<b>Plan 16</b>	GRE Short Term - 2016 - 100MW Calpine Mankato - 2017 - 278MW Black Dog 6 - 2018 - 208MW	486 MW	\$39,200	+ \$42.7
<b>Plan 17</b>	Invenergy Cannon Falls - 2016 - 150MW GRE Short Term - 2016 - 100MW Black Dog 6 - 2017 - 208MW	358 MW	\$39,181	+ \$23.2
<b>Plan 18</b>	Invenergy Cannon Falls - 2016 - 150MW GRE Short Term - 2016 - 200MW Black Dog 6 - 2018 - 208MW	358 MW	\$39,184	+ \$26.9
<b>Plan 19</b>	GRE Short Term - 2016 - 200MW Calpine Mankato - 2017 - 278MW Black Dog 6 - 2019 - 208MW	486 MW	\$39,207	+ \$49.3
<b>Plan 20</b>	Invenergy Cannon Falls - 2016 - 150MW Calpine Mankato - 2017 - 278MW Black Dog 6 - 2019 - 208MW	636 MW	\$39,209	+ \$51.7

**Table 9 – Strategist Input Sensitivity Tests (PVRR)  
 Top 20 Plans**

	Selected Bids	Base Case	High Gas	Low Gas	Capacity Credit +\$1	Capacity Credit -\$1	No 750MW Wind	PPA Extension	Invenergy Firm Gas
1	Invenergy Cannon Falls Black Dog 6								
2	Calpine Mankato Black Dog 6	+ \$22	(\$18)	+ \$22	(\$10)	+ \$17	+ \$8	+ \$14	(\$27)
3	GRE Short Term Red River Valley 1 Black Dog 6	+ \$3	+ \$4	+ \$3	(\$4)	+ \$9	+ \$3	+ \$29	(\$28)
4	Invenergy Cannon Falls GRE Short Term Black Dog 6	+ \$4	+ \$6	+ \$5	+ \$6	+ \$6	+ \$4	+ \$4	+ \$6
5	Black Dog 6 Red River Valley 1	+ \$10	+ \$8	+ \$9	+ \$1	+ \$14	+ \$9	+ \$36	(\$23)
6	Calpine Mankato Black Dog 6	+ \$30	(\$11)	+ \$30	(\$2)	+ \$24	+ \$16	+ \$22	(\$20)
7	GRE Short Term Black Dog 6 Red River Valley 1	+ \$11	+ \$10	+ \$11	+ \$3	+ \$16	+ \$11	+ \$37	(\$21)
8	Invenergy Cannon Falls Black Dog 6	+ \$11	+ \$10	+ \$11	+ \$11	+ \$11	+ \$11	+ \$11	+ \$11
9	Invenergy Cannon Falls GRE Short Term Black Dog 6	+ \$12	+ \$13	+ \$13	+ \$13	+ \$13	+ \$12	+ \$12	+ \$13
10	GRE Short Term Calpine Mankato Black Dog 6	+ \$35	(\$5)	+ \$35	+ \$3	+ \$29	+ \$20	+ \$26	(\$15)
11	GRE Short Term Red River Valley 1 Black Dog 6	+ \$18	+ \$18	+ \$18	+ \$11	+ \$24	+ \$18	+ \$44	(\$14)
12	Invenergy Cannon Falls Red River Valley 1 Black Dog 6	+ \$20	+ \$19	+ \$18	(\$6)	+ \$37	+ \$18	+ \$51	+ \$16
13	Invenergy Cannon Falls GRE Short Term Black Dog 6	+ \$19	+ \$20	+ \$20	+ \$20	+ \$20	+ \$19	+ \$19	+ \$20
14	Calpine Mankato Black Dog 6	+ \$42	+ \$0	+ \$41	+ \$9	+ \$35	+ \$27	+ \$33	(\$9)
15	Hampton Corners Black Dog 6	+ \$21	+ \$21	+ \$20	+ \$4	+ \$34	+ \$20	+ \$25	+ \$50
16	GRE Short Term Calpine Mankato Black Dog 6	+ \$43	+ \$2	+ \$42	+ \$10	+ \$36	+ \$28	+ \$34	(\$8)
17	Invenergy Cannon Falls GRE Short Term Black Dog 6	+ \$23	+ \$23	+ \$23	+ \$23	+ \$23	+ \$23	+ \$23	+ \$23
18	Invenergy Cannon Falls GRE Short Term Black Dog 6	+ \$27	+ \$27	+ \$27	+ \$27	+ \$27	+ \$27	+ \$27	+ \$27
19	GRE Short Term Calpine Mankato Black Dog 6	+ \$49	+ \$9	+ \$49	+ \$17	+ \$44	+ \$35	+ \$41	(\$1)
20	Invenergy Cannon Falls Calpine Mankato Black Dog 6	+ \$52	+ \$13	+ \$51	+ \$3	+ \$60	+ \$37	+ \$50	+ \$32

## Invenergy Cannon Falls vs Black Dog 6

Plan 56: Calpine Mankato + Invenergy Cannon Falls  
 vs.  
 Plan 2: Calpine Mankato + Black Dog 6



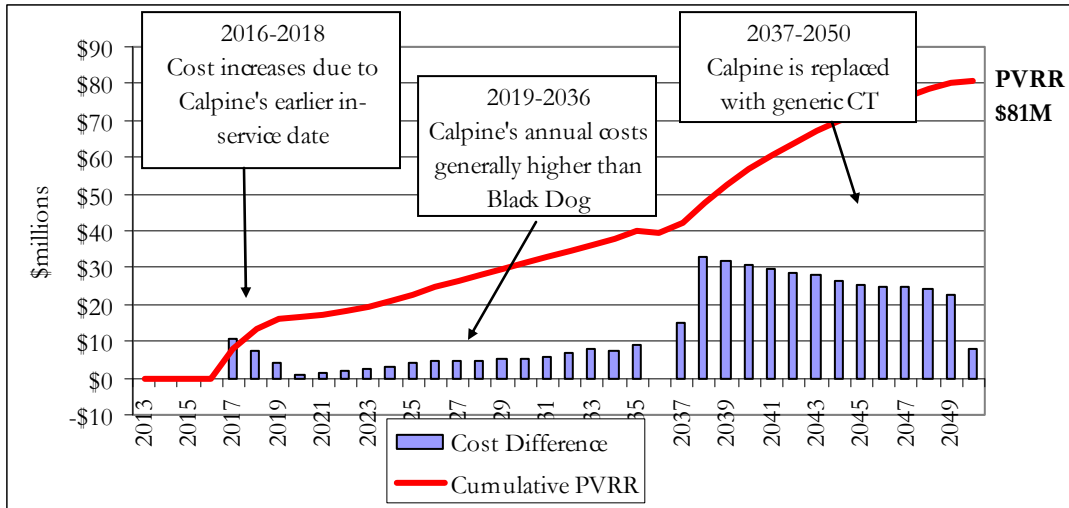
<i>Invenergy Cannon Falls</i>	<b>PVRR \$millions</b>
Cannon Falls Capacity Payment	\$102
<u>2036 Replacement CT</u>	<u>\$58</u>
Cannon Falls Total Cost	\$160
<i>Energy and Emission Costs Differences</i>	
Net Energy Costs	\$3
<u>Net Emission Costs</u>	<u>\$0</u>
Net Costs	\$3
<i>Black Dog Unit 6</i>	
Black Dog 6 Revenue Requirements	\$135
<u>Capacity Credit</u>	<u>(\$31)</u>
Net Black Dog 6 Costs	\$104
<b>Total Net PVRR</b>	
<b>Cannon Falls + Energy &amp; Emission Costs - Black Dog 6</b>	<b>\$58</b>

## Calpine Mankato vs. Black Dog 6

Plan 56: Invenergy Cannon Falls + Calpine Mankato

vs.

Plan 1: Invenergy Cannon Falls + Black Dog 6



	<b>PVRR \$millions</b>
<i>Calpine Mankato Expansion</i>	
Calpine Mankato Capacity Payment	\$237
Calpine Efficiency Benefit	(\$40)
Capacity Credit	(\$24)
<u>2037 Replacement CT</u>	<u>\$53</u>
Calpine Total Cost	\$226
Net Emission Costs	\$0

<i>Black Dog Unit 6</i>	
Black Dog 6 Revenue Requirements	\$145

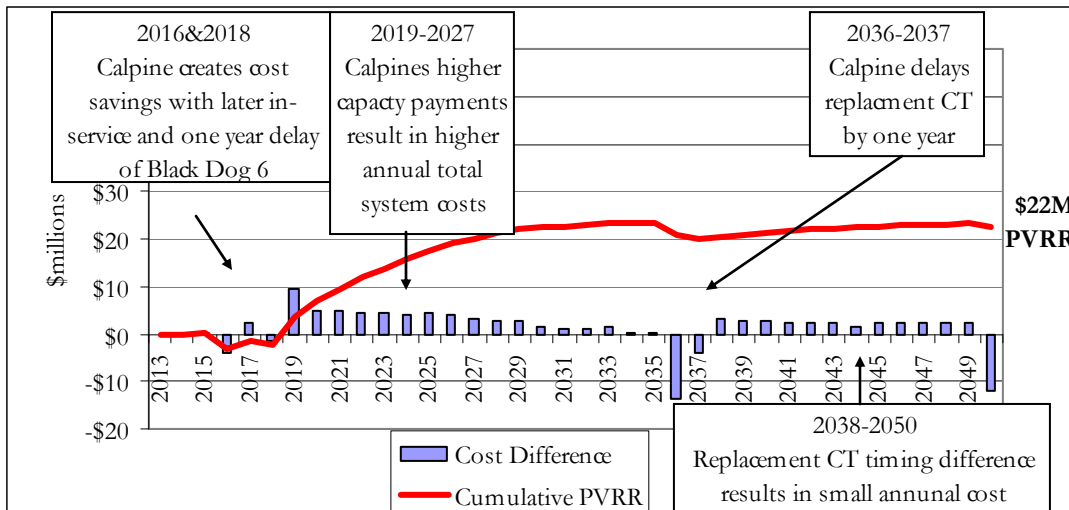
<b>Total Net PVRR</b>	
<b>Calpine + Net Emission Costs - Black Dog</b>	<b>\$81</b>

## Calpine Mankato vs. Invenergy Cannon Falls

Plan 2: Calpine Mankato + Black Dog 6 2019

vs.

Plan 1: Invenergy Cannon Falls + Black Dog 6 2018



### PVRR \$millions

#### *Calpine Mankato Expansion*

Mankato Capacity Payments	\$237
Combined Cycle Efficiency Benefit	(\$42)
Black Dog 6 One Year Delay	(\$10)
<u>Capacity Credit</u>	<u>(\$55)</u>
Net Calpine Costs	\$130

#### *Other Total System Cost Differences*

Long Term Expansion Plan Difference	(\$5)
<u>Net Emission Costs</u>	<u>\$0</u>
Net Costs	(\$5)

#### *Invenergy Cannon Falls*

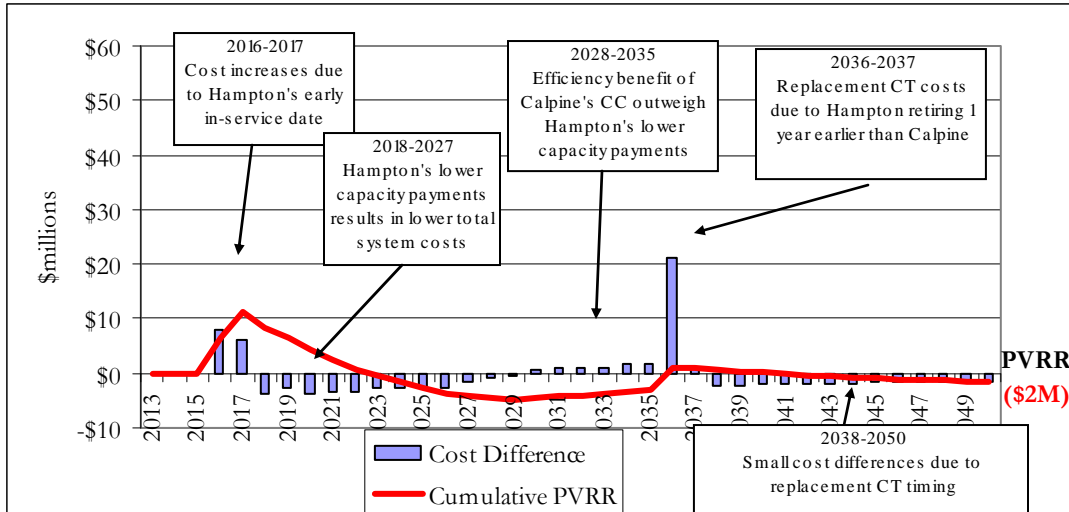
Cannon Falls Capacity Payment	\$102
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### **Total Net PVSC**

Calpine + Other System Cost Differences - Cannon Falls	<b>\$22</b>
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## Invenergy Hampton Energy Center vs. Calpine Mankato

Plan 15: Invenergy Hampton Energy Center + Black Dog 6  
 vs.  
 Plan 2: Calpine Mankato + Black Dog 6



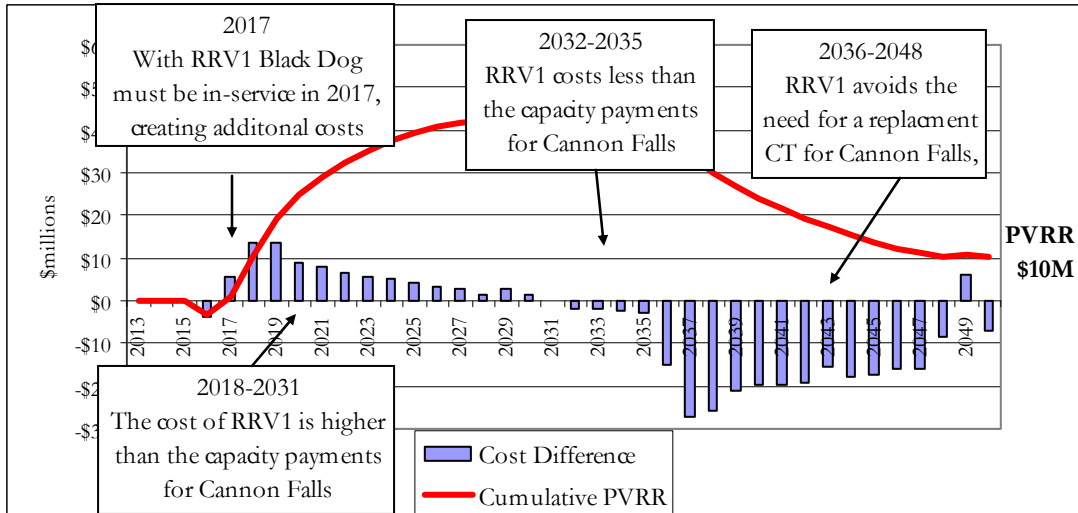
<i>Invenergy Hampton Energy Center</i>	<b>PVRR \$millions</b>
Hampton Energy Center Capacity Payment	\$204
<u>Capacity Credit</u>	(\$8)
Cannon Falls Total Cost	\$196
<i>Other Total System Cost Differences</i>	
Long Term Expansion Plan Difference	\$5
<u>Net Emission Costs</u>	\$0
Net Costs	\$4.9
<i>Calpine Mankato Expansion</i>	
Mankato Capacity Payments	\$237
<u>Combined Cycle Efficiency Benefit</u>	(\$34)
Net Black Dog 6 Costs	\$203
<b>Total Net PVSC</b>	
Hampton - Calpine + Other System Cost Differences	(\$2)

## Red River Valley Unit 1 vs. Invenergy Cannon Falls

Plan 5: Red River Valley 1 + Black Dog 6 2017

vs.

Plan 1: Invenergy Cannon Falls + Black Dog 6 2018



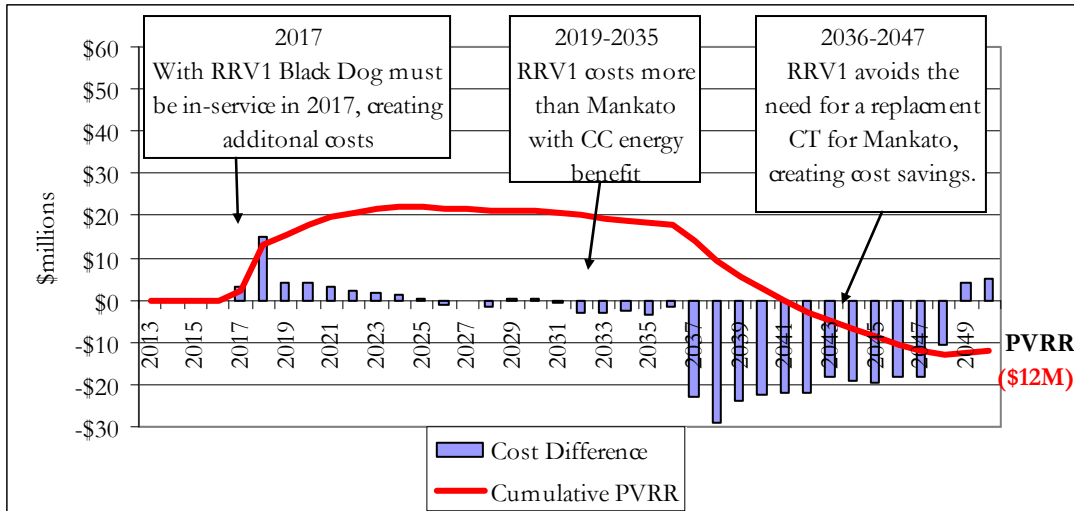
	<b>PVRR \$millions</b>
<i>Red River Valley 1</i>	
RRV 1 Revenue Requirements	\$193
Early Black Dog Costs	\$14
<u>Capacity Credit</u>	(\$27)
RRV 1 Total Costs	\$180
<i>Other Total System Cost Differences</i>	
Net Fuel Costs	(\$5)
<u>Net Emission Costs</u>	\$0
Net Costs	(\$5)
<i>Invenergy Cannon Falls</i>	
Cannon Falls Capacity Payments	\$102
<u>Replacement CT</u>	\$63
Total Cannon Falls Costs	\$165
<b>Total Net PVSC</b>	
RRV1 + Other System Cost Differences - Cannon Falls	<b>\$10</b>

## Red River Valley Unit 1 vs. Calpine Mankato

Plan 11: Red River Valley 1 + Black Dog 6 2017

vs.

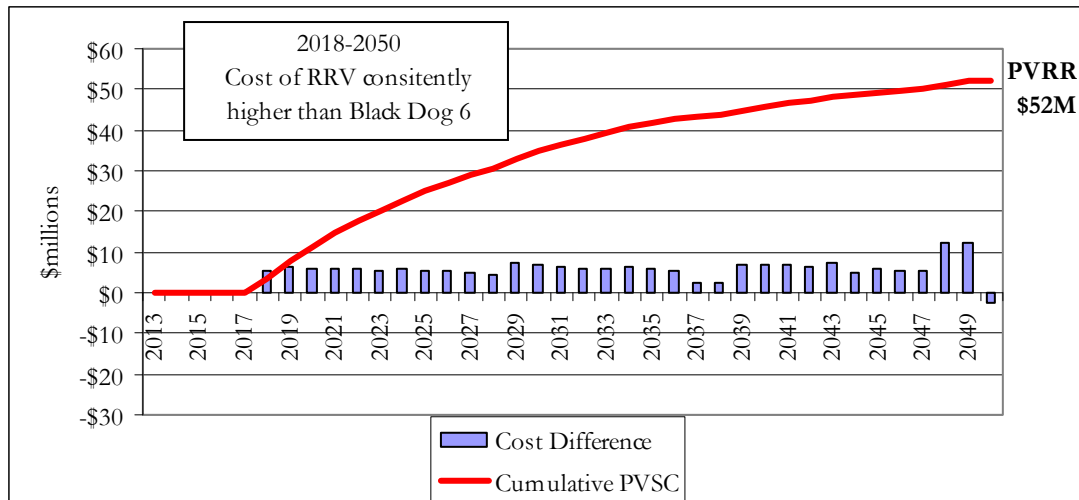
Plan 2: Calpine Mankato + Black Dog 6 2019



	<b>PVRR</b> \$millions
<i>Red River Valley 1</i>	
RRV 1 Revenue Requirements	\$193
<u>Early Black Dog Costs</u>	\$24
RRV 1 Total Costs	\$217
<u>Net Emission Costs</u>	\$0
<i>Calpine Mankato Expansion</i>	
Mankato Capacity Payments	\$237
Capacity Credit	(\$28)
Net Fuel Costs	(\$37)
<u>Replacement CT</u>	\$58
Total Cannon Falls Costs	\$229
<b>Total Net PVSC</b>	
RRV1 + Other System Cost Differences - Cannon Falls	<b>(\$12)</b>

## Red River Valley Unit 1 vs. Black Dog 6

Plan 60: Invenergy Cannon Falls + Red River Valley 1  
 vs.  
 Plan 1: Invenergy Cannon Falls + Black Dog 6



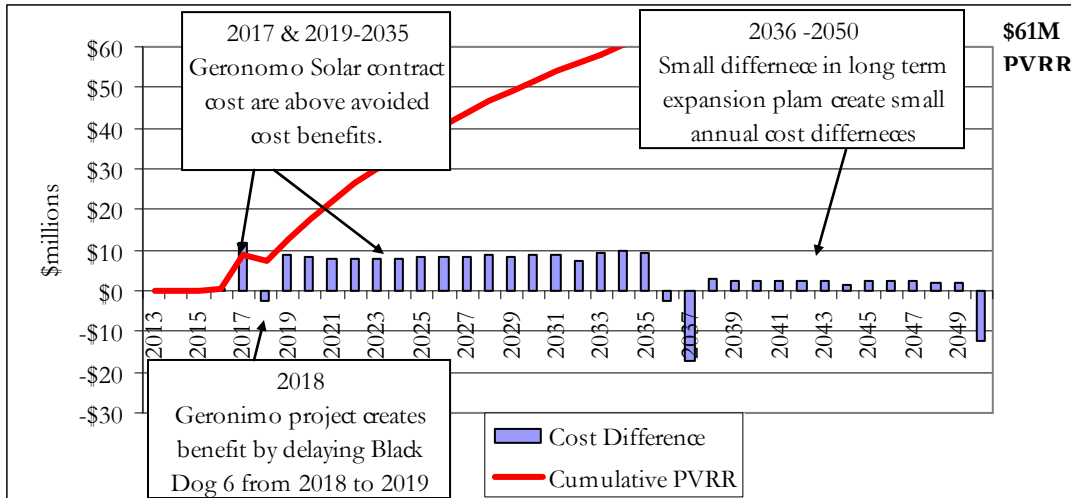
<i>Red River Valley 1</i>	<b>PVRR \$millions</b>
RRV 1 Revenue Requirements	\$193
Other System Costs	\$4
<i>Black Dog 6</i>	
Black Dog Revenue Requirements	\$145
<b>Total Net PVSC</b>	
RRV1 + Other System Cost Differences - Black Dog	<b>\$52</b>

## Geronimo Solar

Plan 29: Invenergy Cannon Falls + Black Dog 6 + Geronimo Solar

vs.

Plan 1: Invenergy Cannon Falls + Black Dog 6



<i>Geronimo Solar Project</i>	<b>PVRR \$millions</b>
Geronimo Energy Payments	\$186
Long Term Expansion Plan Difference	(\$1)
<i>Costs Avoided By Solar</i>	
Avoided Energy	\$82
Avoided Capacity	\$43
<u>Avoided Emissions</u>	<u>\$0</u>
Total Avoided Costs	\$124
<b>Total Net PVSC</b>	
Geronimo + LT Expansion Diff. - Avoided Cost of Solar	<b>\$61</b>