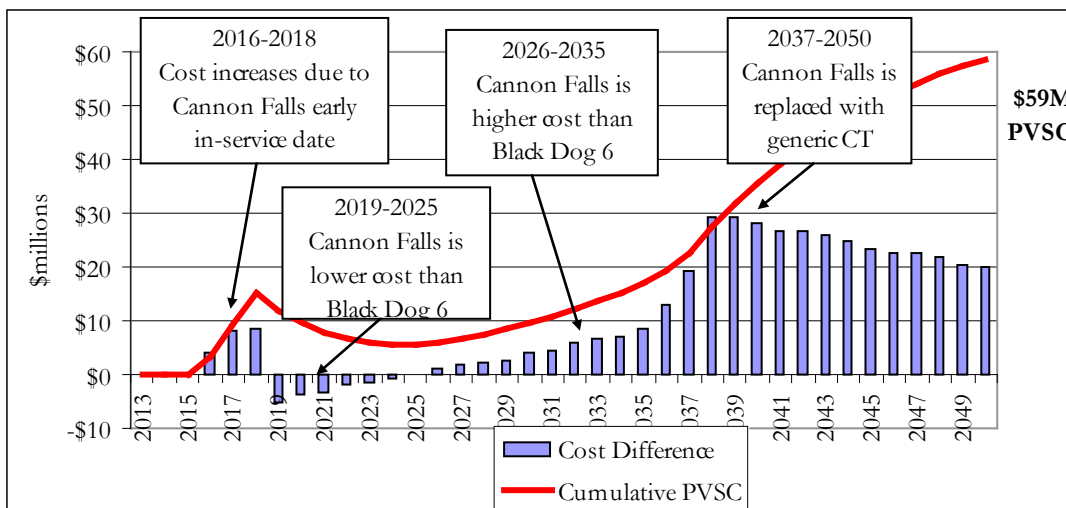


## Invenergy Cannon Falls vs Black Dog 6

Plan 56: Calpine Mankato + Invenergy Cannon Falls

vs.

Plan 2: Calpine Mankato + Black Dog 6

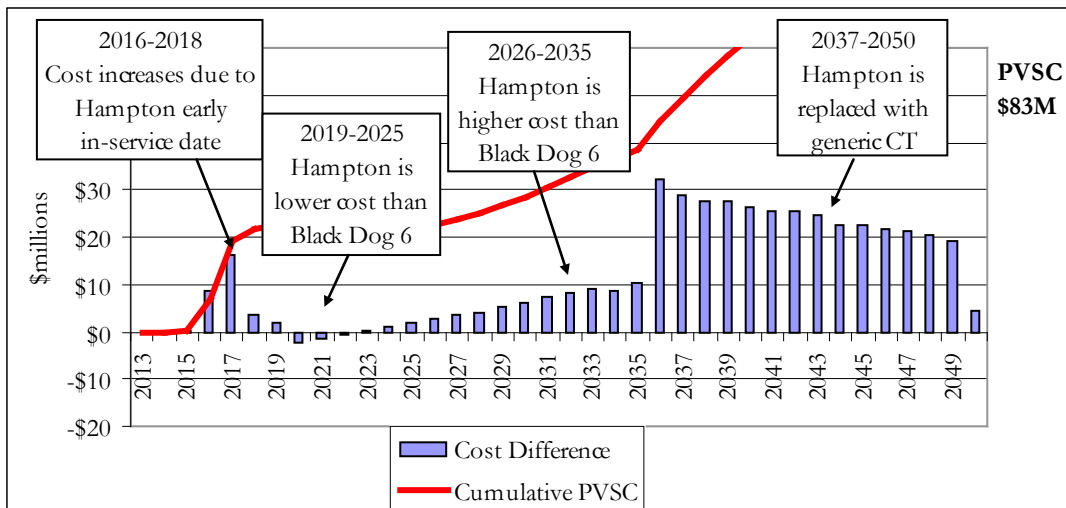


<i>Invenergy Cannon Falls</i>	<b>PVSC \$millions</b>
Cannon Falls Capacity Payment	\$102
<u>2036 Replacement CT</u>	\$58
Cannon Falls Total Cost	\$160
<i>Energy and Emission Costs Differences</i>	
Net Energy Costs	\$5
<u>Net Emission Costs</u>	(\$2)
Net Costs	\$3
<i>Black Dog Unit 6</i>	
Black Dog 6 Revenue Requirements	\$135
<u>Capacity Credit</u>	(\$31)
Net Black Dog 6 Costs	\$104
<b>Total Net PVSC</b>	
Cannon Falls + Energy & Emission Costs - Black Dog 6	<b>\$59</b>

## Invenergy Hampton Energy Center vs. Black Dog 6

Plan 117: Invenergy Cannon Falls + Invenergy Hampton Energy Center  
 vs.

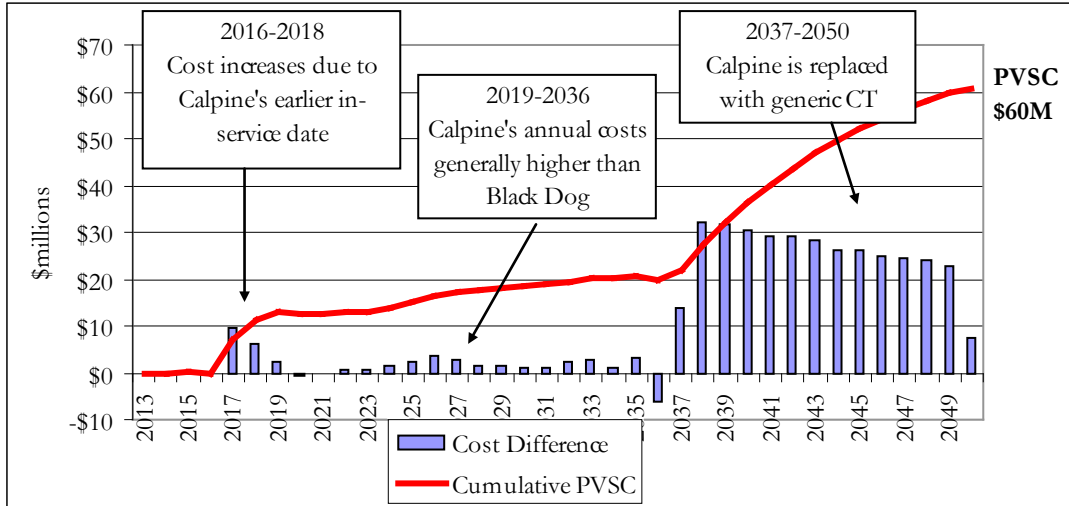
Plan 1: Invenergy Cannon Falls + Black Dog 6



	<b>PVSC</b> \$millions
<i>Invenergy Hampton Energy Center</i>	
Hampton Capacity Payment	\$204
Capacity Credit	(\$35)
<u>2036 Replacement CT</u>	<u>\$63</u>
Cannon Falls Total Cost	\$232
<i>Energy and Emission Costs Differences</i>	
Net Energy Costs	(\$2)
<u>Net Emission Costs</u>	<u>(\$2)</u>
Net Costs	(\$4)
<i>Black Dog Unit 6</i>	
Black Dog 6 Revenue Requirements	\$145
<b>Total Net PVSC</b>	
Hampton + Energy & Enviro Costs - Black Dog 6	<b>\$83</b>

## Calpine Mankato vs. Black Dog 6

Plan 56: Invenergy Cannon Falls + Calpine Mankato  
 vs.  
 Plan 1: Invenergy Cannon Falls + Black Dog 6



	<b>PVSC \$millions</b>
<i>Calpine Mankato Expansion</i>	
Calpine Mankato Capacity Payment	\$237
Calpine Efficiency Benefit	(\$64)
Capacity Credit	(\$24)
<u>2037 Replacement CT</u>	<u>\$53</u>
Cannon Falls Total Cost	\$201
<b>Net Emission Costs</b>	<b>\$4</b>

### *Black Dog Unit 6*

Black Dog 6 Revenue Requirements	\$145
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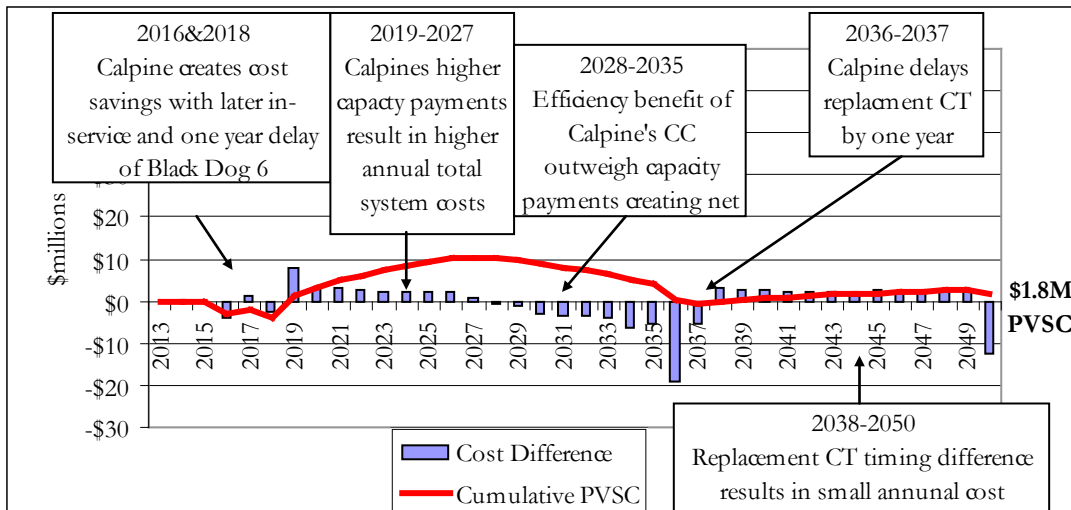
<b>Total Net PVSC</b>	
Calpine + Net Emission Costs - Black Dog	<b>\$60</b>

## Calpine Mankato vs. Invenergy Cannon Falls

Plan 2: Calpine Mankato + Black Dog 6 2019

vs.

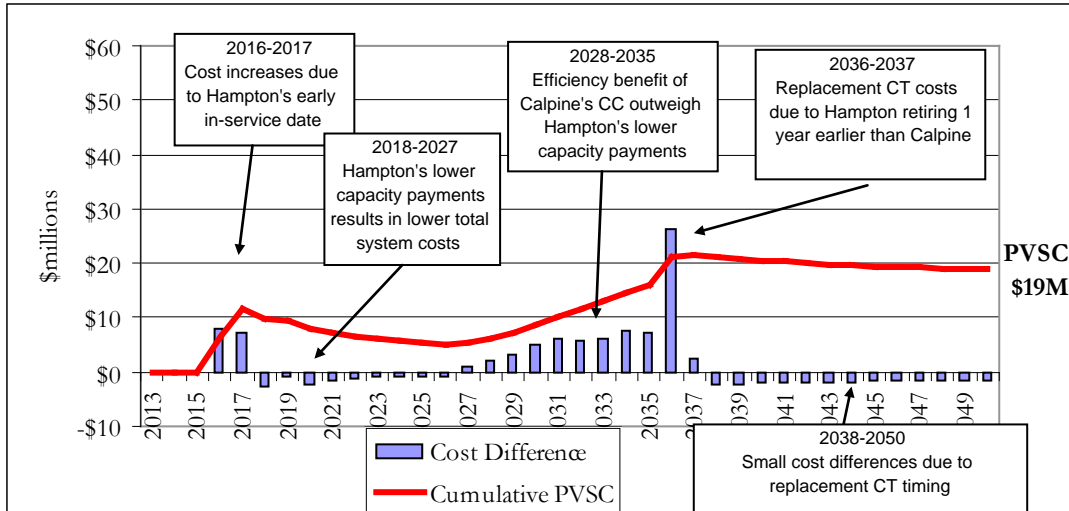
Plan 1: Invenergy Cannon Falls + Black Dog 6 2018



	<b>PVSC</b>
	<b>\$millions</b>
<i>Calpine Mankato Expansion</i>	
Mankato Capacity Payments	\$237
Combined Cycle Efficiency Benefit	(\$69)
Black Dog 6 One Year Delay	(\$10)
<u>Capacity Credit</u>	<u>(\$55)</u>
Net Calpine Costs	\$103
<i>Other Total System Cost Differences</i>	
Long Term Expansion Plan Difference	(\$5)
<u>Net Emission Costs</u>	<u>\$6</u>
Net Costs	\$1
<i>Invenergy Cannon Falls</i>	
Cannon Falls Capacity Payment	\$102
<b>Total Net PVSC</b>	
Calpine + Other System Cost Differences - Cannon Falls	<b>\$1.8</b>

## Invenergy Hampton Energy Center vs. Calpine Mankato

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



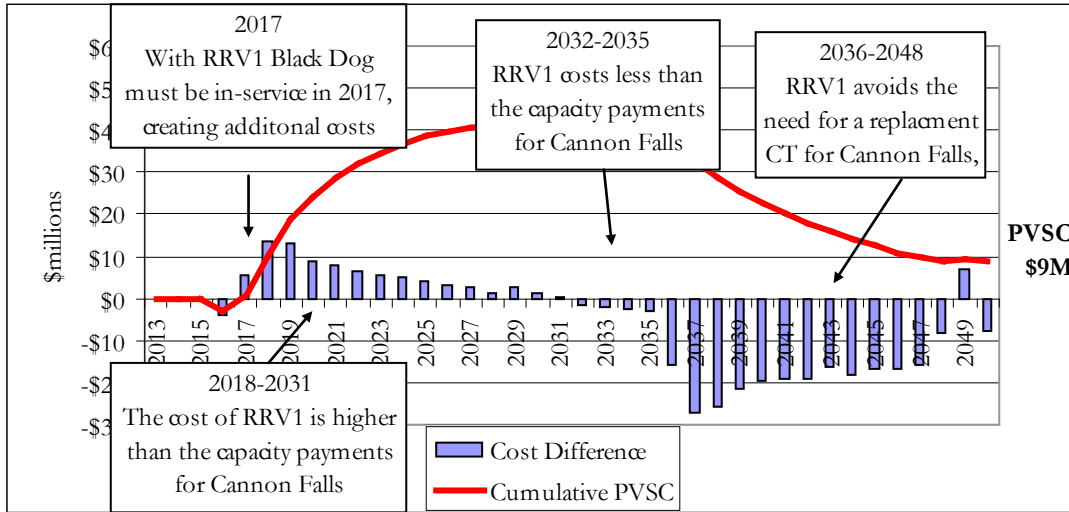
<i>Invenergy Hampton Energy Center</i>	<b>PVSC \$millions</b>
Hampton Energy Center Capacity Payment	\$204
<u>Capacity Credit</u>	<del>(\$8)</del>
Cannon Falls Total Cost	\$196
<i>Other Total System Cost Differences</i>	
Long Term Expansion Plan Difference	\$5
<u>Net Emission Costs</u>	<del>(\$5)</del>
Net Costs	<del>(\$0.5)</del>
<i>Calpine Mankato Expansion</i>	
Mankato Capacity Payments	\$237
<u>Combined Cycle Efficiency Benefit</u>	<del>(\$60)</del>
Net Black Dog 6 Costs	\$177
<b>Total Net PVSC</b>	
Hampton - Calpine + Other System Cost Differences	<b>\$19</b>

## 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



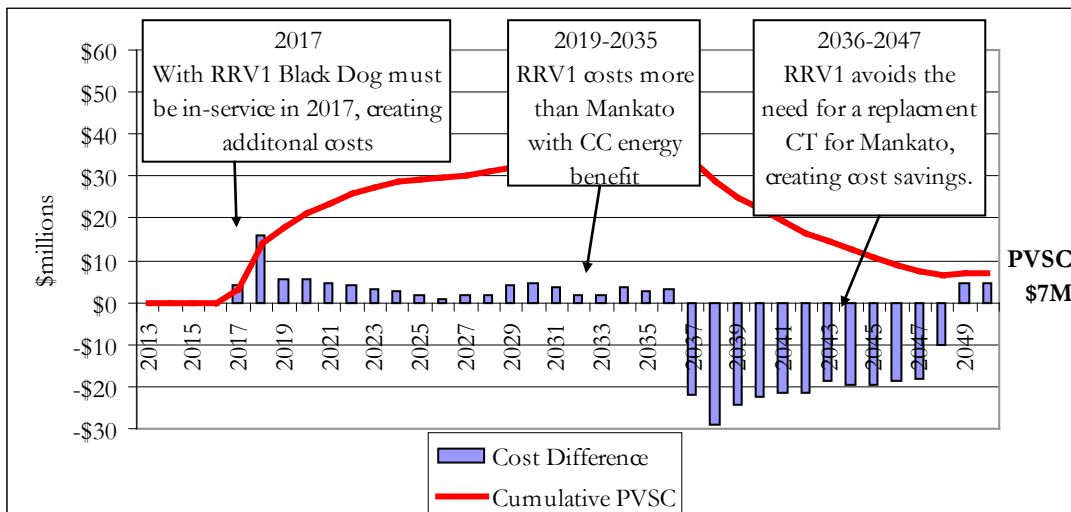
	<b>PVSC \$millions</b>
<i>Red River Valley 1</i>	
RRV 1 Revenue Requirements	\$193
Early Black Dog Costs	\$14
<u>Capacity Credit</u>	<del>(\$27)</del>
RRV 1 Total Costs	\$180
<i>Other Total System Cost Differences</i>	
Net Fuel Costs	(\$7)
<u>Net Emission Costs</u>	\$1
Net Costs	(\$6)
<i>Invenergy Cannon 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>\$9</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>PVSC \$millions</b>
<i>Red River Valley 1</i>	
RRV 1 Revenue Requirements	\$193
<u>Early Black Dog Costs</u>	<u>\$24</u>
RRV 1 Total Costs	\$217
<u>Net Emission Costs</u>	<u>(\$5)</u>
<i>Calpine Mankato Expansion</i>	
Mankato Capacity Payments	\$237
Capacity Credit	(\$28)
Net Fuel Costs	(\$62)
<u>Replacement CT</u>	<u>\$58</u>
Total Cannon Falls Costs	\$205
<b>Total Net PVSC</b>	
RRV1 + Other System Cost Differences - Cannon Falls	<b>\$7</b>

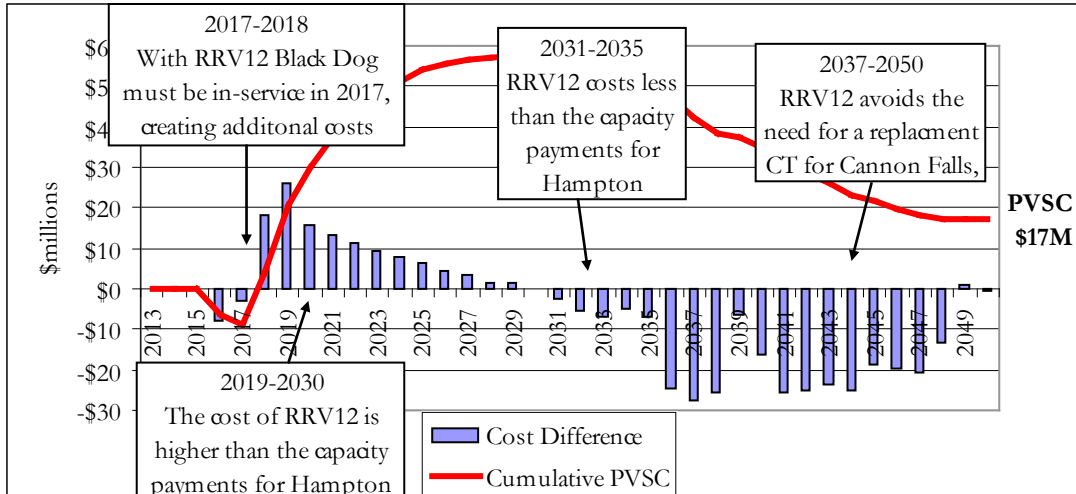


## Red River Valley Units 1&2 vs. Invenergy Hampton Energy Center

Plan 42: Red River Valley 1&2 + Black Dog 6 2017

vs.

Plan 15: Invenergy Hampton Energy Center + Black Dog 6 2019



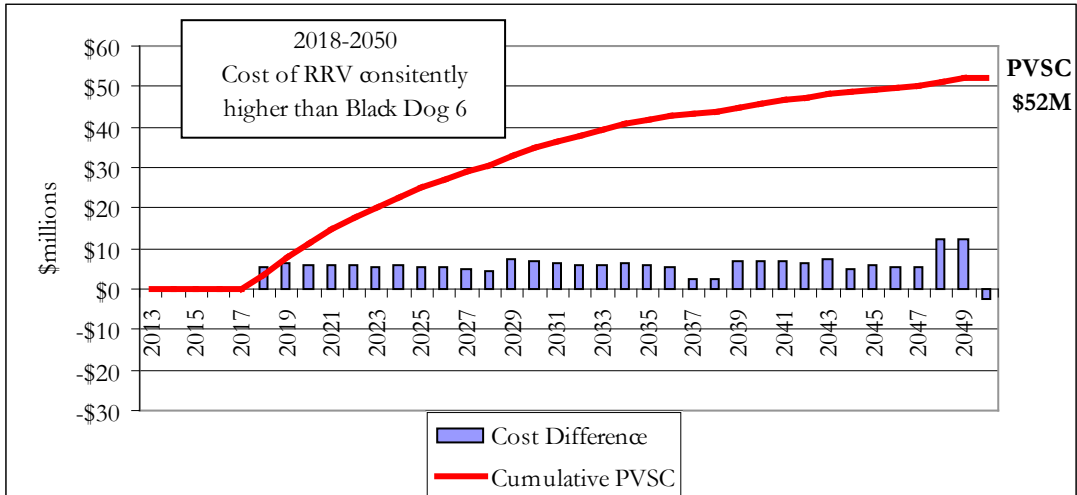
<i>Red River Valley 1&amp;2</i>	<b>PVSC \$millions</b>
RRV 12 Revenue Requirements	\$353
Early Black Dog Costs	\$24
<u>Capacity Credit</u>	<del>(\$84)</del>
RRV 12 Total Costs	\$293
Net Emission Costs	\$3.0
<i>Invenergy Hampton Energy Center</i>	
Hampton Capacity Payments	\$204
Net Fuel Costs	\$12
<u>Replacement CT</u>	\$63
Total Cannon Falls Costs	\$279
<b>Total Net PVSC</b>	
RRV12 + Other System Cost Differences - Hampton	<b>\$17</b>

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

Plan 60: Invenergy Cannon Falls + Red River Valley 1

vs.

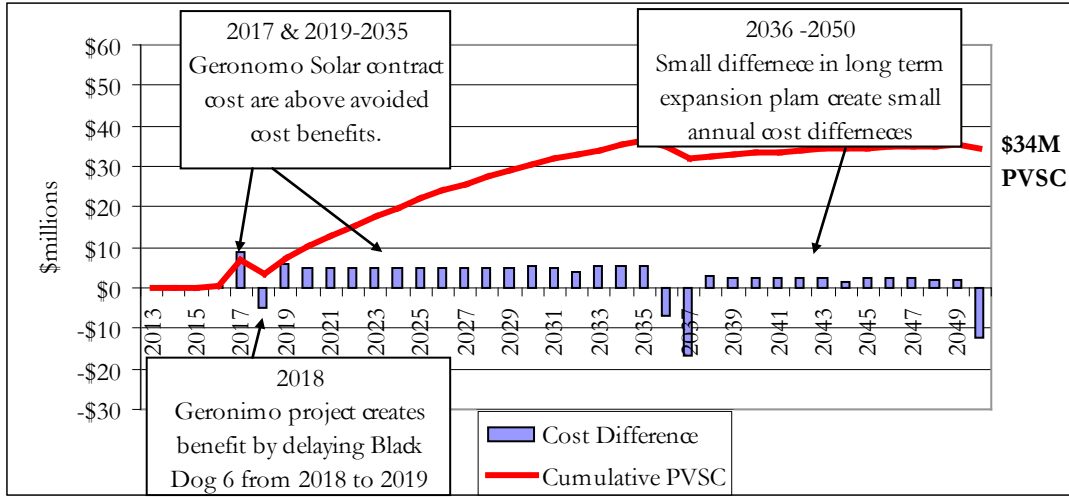
Plan 1: Invenergy Cannon Falls + Black Dog 6



	<b>PVSC</b> \$millions
<i>Red River Valley 1</i>	
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>PVSC \$millions</b>
Geronimo Energy Payments	\$186
Long Term Expansion Plan Difference	(\$1)
<i>Costs Avoided By Solar</i>	
Avoided Energy	\$88
Avoided Capacity	\$43
<u>Avoided Emissions</u>	<u>\$20</u>
Total Avoided Costs	\$151
<b>Total Net PVSC</b>	
Geronimo + LT Expansion Diff. - Avoided Cost of Solar	<b>\$34</b>