

1 Q. Hydro's correspondence dated October 5, 2023, Attachment 1, Midgard Consulting Inc's Report,  
2 pages 29-30 of 74, states

3                   simplicity of modelling and ease of data audit, costs are assigned when the bulk  
4                   of the costs are anticipated to occur, rather than breaking up total costs into  
5                   annual phases. As an example, the costs for the regional powerhouse are  
6                   incurred in 2028, rather than spread from 2023 to 2029 since the plurality of  
7                   costs will occur in this year.

8                   Application, Revision 2, Schedule 3, page 1, Table 1 shows that 93% of the \$88 million will be  
9                   spent in years 2027 and prior, 7% forecast to be spent in 2028, and 0% in 2029. Please repeat  
10                  the requested analyses using the forecasted annual spend detailed within Schedule 3.

11

12

13 A. Midgard Consulting Inc.'s ("Midgard") analysis, updated to reflect spends in the years they are  
14 to be incurred, is provided in the Midgard report "Analysis of Additional Southern Labrador  
15 Scenarios Requested Through Information Requests NP-NLH-093 and PUB-NLH-099," provided  
16 as PUB-NLH-097, Attachment 1. As the sensitivity model uses a series of components to  
17 "assemble" scenarios with various combinations of diesel generation stations, diesel generating  
18 station upgrade packages, gensets, and transmission infrastructure, cash flow for each  
19 alternative was modelled to align with the detailed cash flow for the Regional Plant alternative,  
20 where applicable. These changes were applied to all scenarios in the sensitivity model, including  
21 those requested in request for information ("RFI") NP-NLH-093 of this proceeding named  
22 "Phased Regional" and RFI PUB-NLH-099 of this proceeding named "Islanded Life Extension." In  
23 summary, the changes in cost phasing altered the net present value of some scenarios;  
24 however, the overall base case results still favour the Regional Plant alternative as do sensitivity  
25 analyses in approximately 80% of the sensitivity scenarios analyzed.



# **Analysis of Additional Southern Labrador Scenarios Requested Through Information Requests NP-NLH-093 and PUB-NLH-099**

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**SUBMITTED BY**

Midgard Consulting Inc.

**DATE**

November 5, 2023



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Midgard, established in 2009, provides consulting services across the electrical power and utility sector. Midgard's principals and staff have direct experience in project development, design, contract procurement, finance, construction, and operations. This combined experience has translated into mandates in project due diligence, lender's technical advisor, loan guarantee assessments, and Independent Engineer roles in Canada, the United States, and internationally. Midgard has worked for developers, utilities, government agencies, and both project lenders and equity providers.

Midgard's team has extensive experience modelling fuel sources, creating energy yield estimates, reviewing contracts, reviewing pro-formas, and assessing project risks from a construction, operations, and financial perspective.



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Prepared By: Scott Martin Nov 7, 2023  
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## 1 OVERVIEW

In early 2023 Midgard Consulting Inc. (“Midgard”) provided an integrated resource plan regarding alternative generation solutions to serve six southern Labrador communities. Further information was provided as a result of a series of information requests in early August. Information requests provided to NLH on October 25, 2023 included two requests for addition scenarios to be analyzed.

### 1.1 NP-NLH-097: Phased Spend Profile

The PUB also requested modification to the way multi-year capital cost items were modelled. Specifically, PUB-NLH-097 requested that a staged spend profile for powerhouses be included in the modelling rather than assuming single, lump-sum costs in a given year. Consequently, a spend breakdown has been applied based on the anticipated spend profiles for powerhouses and interconnection components in the region.

Component	COD-5	COD-4	COD-3	COD-2	COD-1	COD
Powerhouse	1%	3%	19%	49%	25%	3%
Interconnection (Transmission)				20%	633%	17%
Gensets			19%	70%	11%	

These changes were applied to all scenarios in the model, including those requested in NP-NLH-093 named “Phased Regional” and PUB-NLH-099 named “Islanded Life Extension. These two additional scenarios are described below.

### 1.2 NP-NLH-093: Phased Regional

The “Phased Regional” scenario is a phased regional power plant, with the local (islanded) powerhouses being retired based on their currently planned retirement dates (2030 for MSH, 2035 for PHS and 2045 for SLE) rather than being retired immediately after completion of the regional powerhouse.

### 1.3 PUB-NLH-099: Islanded Life Extension

The “Islanded Life Extension” scenario represents pushing out the retirement dates of the existing (islanded) powerhouses to retire after 50 years, rather than their planned 40-year lifespan. Since the powerhouses are currently in need of upgrades (particularly fire suppression and building envelopes) these life extension programs would need to be included as part of an immediate upgrade, to avoid additional costs past the originally planned lifespan of the facility. Since fire suppression system costs (and an auxiliary building at SLE)



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were already included in the base “Islanded” scenario, detailed breakdowns of these costs by powerhouse follow:

**SLE Scope Definition** - building envelope upgrades only (roof and siding) in 2046.

- Architectural excluding fire suppression shelter - \$440k
- Total Life Extension - \$440k

**MSH Scope Definition** - Building extension to relocate kitchen/meeting area from the switchgear room as well as building envelope upgrade (roof and siding). “MSH Outstanding Work” was also included in the original “Islanded” scenario, and this cost will also be applied to the life extension.

- Architectural/Civil including envelope life extension, building extension and interior renovations - \$1,110k.
- Electrical for interior renovations and extension - \$110k
- Total Life Extension - \$1,220k
- MSH Outstanding Work - \$1,840k

**PHS Scope Definition** - Building extension to relocate kitchen/meeting area from the switchgear room as well as building envelope upgrade (roof and siding).

- Architectural/Civil including envelope life extension, building extension and interior renovations - \$910k
- Electrical for interior renovations and extension - \$110k
- Total Life Extension - \$1,020k

In Midgard’s “Response to Newfoundland and Labrador Board of Commissioners of Public Utilities Information Request Issued Aug 1, 2023” report, the timing of fire suppression costs for the “Islanded” scenario differed from the Technical “Note RP-TN-89”. As part of this updated analysis, Midgard updated the timing of fire suppression to accurately reflect the NLH schedule provided in RP-TN-89. This did not impact the resulting conclusions and recommendations.

## 2 BASELINE RESULTS

The Results for the baseline scenario (all costs at their values at time of estimate, adjusted to 2023 dollars if required) is very similar to that provided in the original analysis, with the lowest net present cost scenario being the regional powerhouse, and the most expensive net present cost being the Interconnection of existing plants. net present cost of each scenario over time is presented in the Updated Table 9 below.

**Updated Table 9: Net Present Costs (Real, \$k CAD 2023)**

	Regional Plant	Islanded	Interconnect Existing	2 Comm Portable	Phased Regional	Islanded, Life Extended
2023	\$11,786	\$11,751	\$11,425	\$11,425	\$11,786	\$11,751
2024	\$23,250	\$23,114	\$21,846	\$21,846	\$23,250	\$23,114
2025	\$39,595	\$39,138	\$34,356	\$34,691	\$41,063	\$38,841
2026	\$71,144	\$64,519	\$57,206	\$56,595	\$69,074	\$64,759
2027	\$114,785	\$92,082	\$85,211	\$80,903	\$103,661	\$88,741
2028	\$125,734	\$118,043	\$113,795	\$110,795	\$119,983	\$100,356
2029	\$130,524	\$135,002	\$128,967	\$143,688	\$134,806	\$108,076
2030	\$135,079	\$146,011	\$139,311	\$156,142	\$145,013	\$117,702
2031	\$139,330	\$152,059	\$149,768	\$160,573	\$149,800	\$122,988
2032	\$144,880	\$163,174	\$172,452	\$164,824	\$156,290	\$130,296
2033	\$148,798	\$179,748	\$196,907	\$168,868	\$160,875	\$135,288
2034	\$152,560	\$192,760	\$210,182	\$173,985	\$165,417	\$140,645
2035	\$156,169	\$198,481	\$215,831	\$177,595	\$169,585	\$145,486
2036	\$159,642	\$202,809	\$219,942	\$181,068	\$173,257	\$149,812
2037	\$164,366	\$208,106	\$224,148	\$184,424	\$178,173	\$155,995
2038	\$167,609	\$212,115	\$228,631	\$187,667	\$181,699	\$162,345
2039	\$170,755	\$217,745	\$233,272	\$192,085	\$185,726	\$168,266
2040	\$173,799	\$221,738	\$237,075	\$195,130	\$189,094	\$173,033
2041	\$176,750	\$225,794	\$240,947	\$198,080	\$192,212	\$181,850
2042	\$181,128	\$233,712	\$247,576	\$200,939	\$196,751	\$198,927
2043	\$183,891	\$245,169	\$259,548	\$203,702	\$200,459	\$220,040
2044	\$186,548	\$254,888	\$268,088	\$207,772	\$205,790	\$230,085
2045	\$189,098	\$258,766	\$271,808	\$210,323	\$208,803	\$234,072
2046	\$191,546	\$261,813	\$274,702	\$212,770	\$211,251	\$237,280
2047	\$194,852	\$265,538	\$277,410	\$215,124	\$214,559	\$240,987
2048	\$197,114	\$268,283	\$280,891	\$217,386	\$216,822	\$244,255





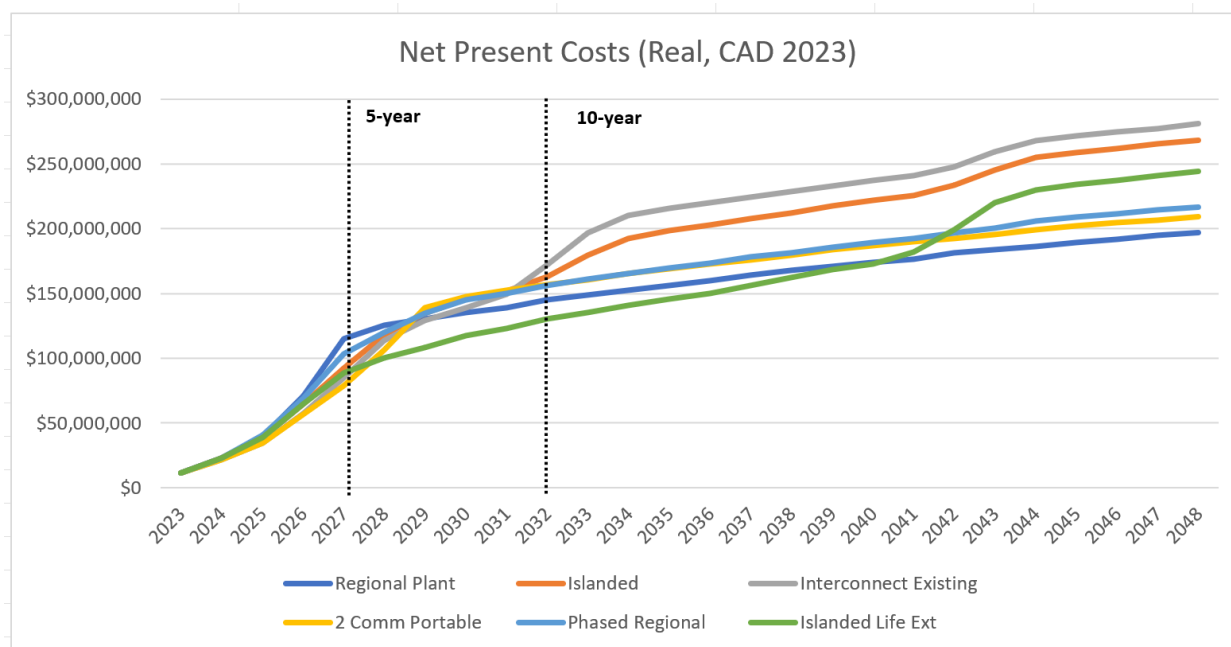
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The 2048 value in Updated Table 9 represents the total costs for the total lifespan of each project, discounted at NLH’s real weighted average cost of capital to 2023 dollars.

The costs above are presented graphically below in Updated Figure 3, with the 5-year and 10-year points indicated.

**Updated Figure 3: Net Present Costs (Real, CAD 2023)**



Updated Table 10 and Updated Table 11 summarize NPC for each Scenario at a snapshot in time (2032 and 2048 respectively) and show the difference for each scenario to the lowest NPC.

**Updated Table 10: Net Present Cost Comparison of Scenarios, Year 10 (2032) (\$000)**

	Regional Plant	Islanded	Interconnect Existing	2 Comm Portable	Phased Regional	Islanded, Life Ext
<b>Net Present Costs (Year 10)</b>	\$144,880	\$163,174	\$172,452	\$164,824	\$156,290	\$130,296
<b>Cost Difference vs. Lowest</b>	\$14,584	\$32,878	\$42,156	\$34,528	\$25,994	\$0

**Updated Table 11: Net Present Cost Comparison of Scenarios, Year 26 (2048) (\$000)**

	Regional Plant	Islanded	Interconnect Existing	2 Comm Portable	Phased Regional	Islanded, Life Ext
<b>Net Present Costs (Year 26)</b>	\$197,114	\$268,283	\$280,891	\$217,386	\$216,822	\$244,255
<b>Cost Difference vs. Lowest</b>	\$0	\$71,169	\$83,777	\$20,272	\$19,708	\$47,141

### 3 SENSITIVITY RESULTS

Review of the sensitivity instances demonstrate the following:

- The “Regional Plant” scenario remains the top-ranked scenario in the majority (200 of 300) sensitivity instances.
- The “Islanded Life Extension” scenario is the top-ranked scenario in the remaining 100 instances, replacing the “Islanded” scenario as the only scenario other than “Regional Plant” to rank as the lowest cost in the sensitivity analysis.

In general, the sensitivity results are similar to those provided in the previous sensitivity investigations. Due to deferred capital costs, the “Islanded Life Extension” scenario is always a lower net present cost than the “Islanded” scenario, so instances that formerly favored “Islanded” now favor “Islanded Life Extension”. A significant factor that results in an increase to the number of instances that no longer favor the “Regional Plant” is the “Islanded Life Extension” scenario pushing the replacement of the SLE powerhouse (2056) out past the end of the financial evaluation window (2048). As a result, “Islanded Life Extension” does not carry the cost of this powerhouse at all when the 25-year financial horizon is used. The results of the 50-year evaluation horizon are somewhat different, with only 34 instances favouring the “Islanded Life Extension” scenario. These scenarios are discussed below in the 50-year evaluation Section 4.

The situations that result in the scenarios other than “Regional Plant” being top ranked are summarized in Updated Table 17 Below:

**Updated Table 17: Sensitivity Results**

Interconnection Cost Change	Capital Cost Change	Fuel Cost Change	Load Change	Sensitivity Instances Included	New Lowest Cost Scenario
150%	75%	75%	-2%	1 of 300	Islanded Life Extension
200%	75%	All	All	20 of 300	Islanded Life Extension
200%	100%	All	All but +2%	19 of 300	Islanded Life Extension
300%	Any	Any	Any	60 of 300	Islanded Life Extension

A full table of sensitivity analysis results for the 25-year timeframe is presented in Appendix A.

#### 3.1 Evaluation of Sensitivity Instances Favouring the “Islanded Life Extension” Scenario

The vast majority of scenarios that demonstrated sensitivity are deemed to be unreasonable (exceedingly unlikely to happen) as they either require interconnection costs drastically increase (300% of current values)



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or to significantly increase (200% increase) while other capital costs stay stable or decline. The only scenario that has an interconnection cost escalation that is viewed as possible in the near future (150%) requires that all other cost parameters (capital cost, fuel cost and load growth) be negative, which is very improbably given the prevailing levels of inflation.

These findings mirror the discussion in Section 7.2 of the “2023-08-01 PUB IR Response” document, including information on historic escalation patterns of gensets and transmission assets based on analysis of Bureau of Labour Statistics (BLS) data. In most of the cases where “Islanded Life Extension” was selected as the lowest NPC scenario, the “Regional Plant” scenario was the second most cost-effective, while in a minority of these scenarios (typically the more “extreme” scenarios, in which capital costs decrease and fuel costs either also decrease or stay the same) the “Islanded” scenario is the second most cost-effective.

## 4 50 YEAR SCENARIO ANALYSIS

The 50-year scenario results aligned with the results from the 25-year scenario, but because the SLE plant replacement occurred within the timeframe of this analysis the “Islanded Life Extension” scenario had somewhat increased costs. This did not impact the relative ranking of the scenarios, but did change the sensitivity analysis, discussed in Section 4.2 below. It is also notable that these sensitivity results more closely mirror the results from the previous sensitivity modelling, where scenarios other than the “Regional Plant” scenario were preferred only if interconnection costs tripled (300%) rather than some scenarios also demonstrating sensitivity at double (200%) interconnection costs (as was found in the 25-year analysis above).

### 4.1 50 Year Baseline Results

The cumulative annual cost of each scenario over time is presented in Updated Table 19. The 2073 value represents the total costs for the total lifespan of each project, discounted at NLH’s real weighted average cost of capital to 2023 dollars.

**Updated Table 19: Net Present Costs (Real, \$000 CAD 2023)**

	Regional Plant	Islanded	Interconnect Existing	2 Comm Portable	Phased Regional	Islanded Life Extended
2023	\$11,786	\$11,751	\$11,425	\$11,425	\$11,786	\$11,751
2024	\$23,250	\$23,114	\$21,846	\$21,846	\$23,250	\$23,114
2025	\$39,595	\$39,138	\$34,356	\$34,691	\$41,063	\$38,841
2026	\$71,144	\$64,519	\$57,206	\$56,595	\$69,074	\$64,759
2027	\$114,785	\$92,082	\$85,211	\$80,903	\$103,661	\$88,741
2028	\$125,734	\$118,043	\$113,795	\$110,795	\$119,983	\$100,356
2029	\$130,524	\$135,002	\$128,967	\$143,688	\$134,806	\$108,076
2030	\$135,079	\$146,011	\$139,311	\$156,142	\$145,013	\$117,702
2031	\$139,330	\$152,059	\$149,768	\$160,573	\$149,800	\$122,988
2032	\$144,880	\$163,174	\$172,452	\$164,824	\$156,290	\$130,296
2033	\$148,798	\$179,748	\$196,907	\$168,868	\$160,875	\$135,288
2034	\$152,560	\$192,760	\$210,182	\$173,985	\$165,417	\$140,645
2035	\$156,169	\$198,481	\$215,831	\$177,595	\$169,585	\$145,486
2036	\$159,642	\$202,809	\$219,942	\$181,068	\$173,257	\$149,812
2037	\$164,366	\$208,106	\$224,148	\$184,424	\$178,173	\$155,995
2038	\$167,609	\$212,115	\$228,631	\$187,667	\$181,699	\$162,345
2039	\$170,755	\$217,745	\$233,272	\$192,085	\$185,726	\$168,266
2040	\$173,799	\$221,738	\$237,075	\$195,130	\$189,094	\$173,033
2041	\$176,750	\$225,794	\$240,947	\$198,080	\$192,212	\$181,850
2042	\$181,128	\$233,712	\$247,576	\$200,939	\$196,751	\$198,927
2043	\$183,891	\$245,169	\$259,548	\$203,702	\$200,459	\$220,040



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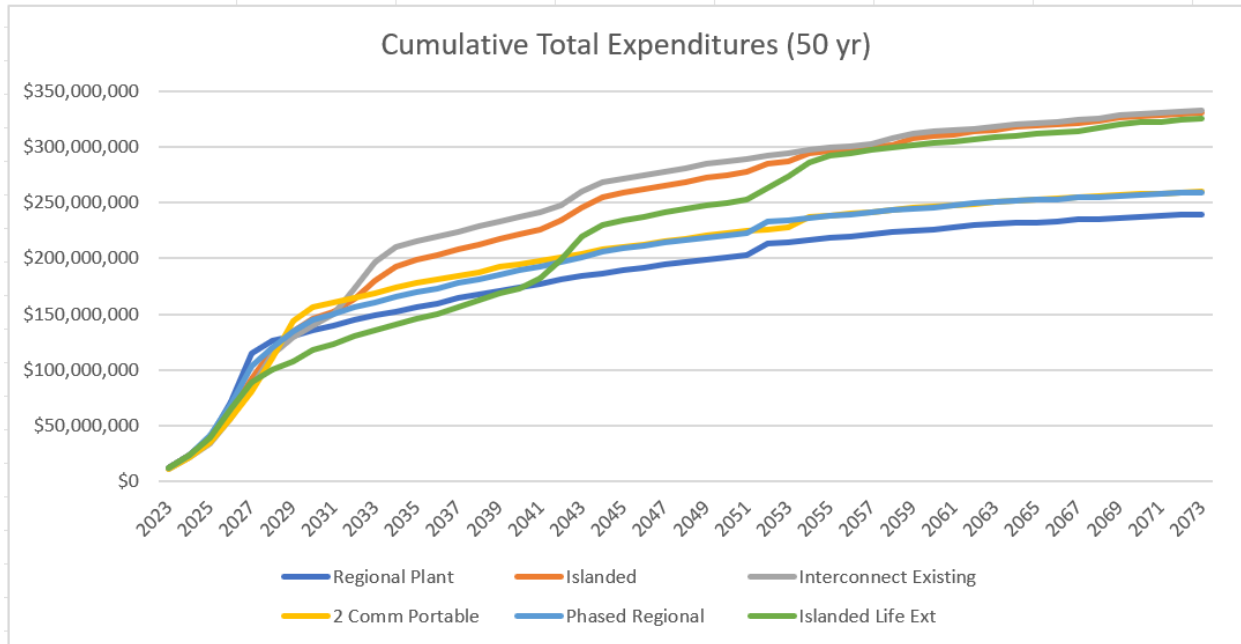
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	<b>Regional Plant</b>	<b>Islanded</b>	<b>Interconnect Existing</b>	<b>2 Comm Portable</b>	<b>Phased Regional</b>	<b>Islanded Life Extended</b>
<b>2044</b>	\$186,548	\$254,888	\$268,088	\$207,772	\$205,790	\$230,085
<b>2045</b>	\$189,098	\$258,766	\$271,808	\$210,323	\$208,803	\$234,072
<b>2046</b>	\$191,546	\$261,813	\$274,702	\$212,770	\$211,251	\$237,280
<b>2047</b>	\$194,852	\$265,538	\$277,410	\$215,124	\$214,559	\$240,987
<b>2048</b>	\$197,114	\$268,283	\$280,891	\$217,386	\$216,822	\$244,255
<b>2049</b>	\$199,264	\$272,446	\$284,365	\$220,422	\$218,972	\$247,187
<b>2050</b>	\$201,306	\$274,932	\$286,721	\$222,464	\$221,015	\$249,881
<b>2051</b>	\$203,246	\$277,297	\$288,962	\$224,404	\$222,957	\$252,696
<b>2052</b>	\$213,006	\$285,303	\$292,090	\$226,248	\$232,718	\$263,150
<b>2053</b>	\$214,759	\$287,445	\$294,597	\$228,000	\$234,472	\$273,525
<b>2054</b>	\$216,424	\$293,815	\$297,197	\$237,031	\$236,138	\$285,502
<b>2055</b>	\$218,007	\$295,756	\$299,034	\$238,614	\$237,722	\$291,665
<b>2056</b>	\$219,512	\$297,604	\$300,782	\$240,118	\$239,227	\$294,031
<b>2057</b>	\$221,899	\$300,263	\$302,445	\$241,549	\$241,616	\$296,862
<b>2058</b>	\$223,269	\$301,947	\$307,197	\$242,908	\$242,986	\$299,158
<b>2059</b>	\$224,592	\$307,696	\$312,174	\$245,092	\$244,309	\$301,219
<b>2060</b>	\$226,001	\$309,387	\$313,609	\$246,331	\$245,720	\$303,148
<b>2061</b>	\$227,618	\$311,263	\$314,975	\$247,527	\$247,337	\$305,000
<b>2062</b>	\$229,443	\$313,433	\$316,276	\$248,806	\$249,164	\$307,022
<b>2063</b>	\$230,526	\$315,137	\$318,085	\$250,280	\$250,247	\$308,692
<b>2064</b>	\$231,532	\$317,529	\$319,966	\$251,950	\$251,253	\$310,139
<b>2065</b>	\$232,489	\$318,749	\$321,118	\$252,931	\$252,211	\$311,592
<b>2066</b>	\$233,399	\$319,905	\$322,337	\$253,841	\$253,121	\$312,728
<b>2067</b>	\$234,728	\$321,535	\$323,800	\$254,706	\$254,451	\$314,233
<b>2068</b>	\$235,551	\$322,877	\$325,469	\$255,530	\$255,275	\$317,473
<b>2069</b>	\$236,335	\$326,327	\$328,610	\$256,745	\$256,059	\$320,505
<b>2070</b>	\$237,081	\$327,282	\$329,510	\$257,491	\$256,806	\$321,798
<b>2071</b>	\$237,791	\$328,175	\$330,350	\$258,201	\$257,516	\$322,692
<b>2072</b>	\$238,981	\$329,508	\$331,151	\$258,877	\$258,707	\$324,024
<b>2073</b>	\$239,624	\$330,320	\$332,147	\$259,520	\$259,351	\$325,233

The figures above are presented graphically in Figure below.



Figure 2: 50 Year Net Present Costs (Real, CAD 2023)



4.2 50 Year Sensitivity Results:

Review of the 50-year sensitivity instances reveals the following:

- The “Regional Plant” scenario remains the top-ranked scenario in the majority (264 of 300) of sensitivity instances.
- The “Islanded Life Extension” scenario is the top-ranked scenario in 36 instances.

The situations that result in the scenarios other than “Regional Plant” being top ranked are summarized in Table 1:

Table 1: 50-year Sensitivity Results

Interconnection Cost Change	Capital Cost Change	Fuel Cost Change	Load Change	Sensitivity Instances Included	New Lowest Cost Scenario
300%	75%	75% to 150%	All	15 of 300	Islanded Life Extension
300%	75%	200%	All but +2%	4of 300	Islanded Life Extension
300%	100%	75% to 100%	All	10 of 300	Islanded Life Extension
300%	100%	150%	All but +2%	4of 300	Islanded Life Extension
300%	100%	200%	All but +1 plant, +2%	3of 300	Islanded Life Extension



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The scenarios that demonstrated sensitivity are deemed to be unreasonable (exceedingly unlikely to happen) as they require interconnection costs to dramatically increase over any other cost increases. These findings mirror the discussion in Section 7.2 of the “2023-08-01 PUB IR Response” document, including information on historic escalation patterns of gensets and transmission assets based on analysis of Bureau of Labour Statistics (BLS) data.

A full table of sensitivity analysis results for the 50-year timeframe is presented in Appendix B.

### **4.3 Evaluation of 50-year Sensitivity Instances Favouring the “Islanded Life Extension” Scenario**

In most of the cases where “Islanded Life Extension” was selected as the lowest NPC scenario, the “Regional Plant” scenario was the second most cost-effective, while in a minority of these scenarios (typically the more “extreme” scenarios, in which capital costs decrease and fuel costs either also decrease or stay the same) the “Islanded” scenario is the second most cost-effective.

## **APPENDIX A: 25-YEAR SENSITIVITY ANALYSIS TABLE**

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Scenario ID	Scenario Inputs				Scenario Results (25 year NPV)										Rank				Same Rank 1?	Same Ranking?	Cost Gap (1st to 2nd)
	Trans. Costs	Cap Costs	Fuel Costs	Load Change	Regional Plant	Islanded	Islanded Life Ext	Interconnect Existing	2 Comm Portable	Phased Regional	Regional Plant	Islanded	Islanded Life Ext	Interconnect Existing	2 Comm Portable	Phased Regional					
1	75%	75%	75%	-2%	\$134,727,780	\$173,893,602	\$154,554,883	\$182,205,013	\$149,534,619	\$143,637,206	1	5	4	6	3	2	TRUE	TRUE	\$8,909,425		
2	75%	75%	75%	-1 plant	\$145,917,049	\$185,978,771	\$166,811,074	\$193,890,411	\$160,743,296	\$155,027,078	1	5	4	6	3	2	TRUE	TRUE	\$9,110,029		
3	75%	75%	75%	None	\$147,418,387	\$187,615,607	\$168,471,479	\$195,471,339	\$162,258,571	\$156,564,834	1	5	4	6	3	2	TRUE	TRUE	\$9,146,447		
4	75%	75%	75%	+1 plant	\$148,919,725	\$189,252,443	\$170,131,884	\$197,052,266	\$163,773,846	\$158,102,590	1	5	4	6	3	2	TRUE	TRUE	\$9,182,866		
5	75%	75%	75%	+2%	\$164,355,450	\$205,939,283	\$187,054,915	\$213,171,723	\$179,232,549	\$173,804,757	1	5	4	6	3	2	TRUE	TRUE	\$9,449,307		
6	75%	75%	100%	-2%	\$151,416,232	\$191,733,713	\$172,592,661	\$199,770,862	\$166,345,086	\$160,524,776	1	5	4	6	3	2	TRUE	TRUE	\$9,108,544		
7	75%	75%	100%	-1 plant	\$165,633,261	\$207,141,540	\$188,228,515	\$214,698,821	\$180,591,720	\$174,973,609	1	5	4	6	3	2	TRUE	TRUE	\$9,340,348		
8	75%	75%	100%	None	\$167,539,808	\$209,228,210	\$190,346,610	\$216,718,650	\$182,517,789	\$176,923,679	1	5	4	6	3	2	TRUE	TRUE	\$9,383,871		
9	75%	75%	100%	+1 plant	\$169,446,354	\$211,314,879	\$192,464,705	\$218,738,480	\$184,483,857	\$178,783,749	1	5	4	6	3	2	TRUE	TRUE	\$9,427,395		
10	75%	75%	100%	+2%	\$189,055,652	\$232,587,070	\$214,051,819	\$239,328,967	\$204,087,926	\$198,789,645	1	5	4	6	3	2	TRUE	TRUE	\$9,733,993		
11	75%	75%	150%	-2%	\$184,793,135	\$227,413,935	\$208,668,215	\$234,096,873	\$234,096,873	\$199,966,021	1	5	4	6	3	2	TRUE	TRUE	\$9,506,780		
12	75%	75%	150%	-1 plant	\$205,065,685	\$249,467,078	\$231,063,399	\$256,315,641	\$220,288,569	\$214,866,671	1	5	4	6	3	2	TRUE	TRUE	\$9,800,986		
13	75%	75%	150%	None	\$207,782,649	\$252,453,414	\$234,096,873	\$259,213,274	\$223,036,224	\$217,641,368	1	5	4	6	3	2	TRUE	TRUE	\$9,858,719		
14	75%	75%	150%	+1 plant	\$210,499,613	\$255,439,749	\$237,130,346	\$262,110,906	\$225,783,879	\$220,416,066	1	5	4	6	3	2	TRUE	TRUE	\$9,916,453		
15	75%	75%	150%	+2%	\$238,456,055	\$285,882,645	\$268,045,627	\$291,643,455	\$253,798,681	\$248,759,420	1	5	4	6	3	2	TRUE	TRUE	\$10,303,364		
16	75%	75%	200%	-2%	\$218,170,039	\$263,094,158	\$244,743,770	\$270,034,260	\$233,586,955	\$228,075,056	1	5	4	6	3	2	TRUE	TRUE	\$9,905,017		
17	75%	75%	200%	-1 plant	\$244,498,109	\$291,792,616	\$273,898,283	\$297,932,461	\$259,985,418	\$254,759,733	1	5	4	6	3	2	TRUE	TRUE	\$10,261,624		
18	75%	75%	200%	None	\$248,025,491	\$295,678,618	\$277,847,135	\$301,707,897	\$263,554,660	\$258,359,058	1	5	4	6	3	2	TRUE	TRUE	\$10,333,567		
19	75%	75%	200%	+1 plant	\$251,552,872	\$299,564,620	\$281,795,988	\$305,483,333	\$267,123,901	\$261,958,383	1	5	4	6	3	2	TRUE	TRUE	\$10,405,511		
20	75%	75%	200%	+2%	\$287,856,459	\$339,178,220	\$322,039,434	\$343,957,942	\$303,509,437	\$298,729,194	1	5	4	6	3	2	TRUE	TRUE	\$10,872,736		
21	75%	100%	75%	-2%	\$144,176,678	\$195,117,812	\$167,394,368	\$200,876,678	\$160,957,984	\$153,830,649	1	5	4	6	3	2	TRUE	TRUE	\$9,653,971		
22	75%	100%	75%	-1 plant	\$155,365,947	\$207,202,982	\$179,650,559	\$212,562,077	\$172,166,661	\$165,220,521	1	5	4	6	3	2	TRUE	TRUE	\$9,854,574		
23	75%	100%	75%	None	\$156,867,285	\$208,839,818	\$181,310,964	\$214,143,004	\$173,681,936	\$166,758,277	1	5	4	6	3	2	TRUE	TRUE	\$9,890,992		
24	75%	100%	75%	+1 plant	\$158,368,623	\$210,476,654	\$182,971,369	\$215,723,932	\$175,197,211	\$168,296,033	1	5	4	6	3	2	TRUE	TRUE	\$9,927,411		
25	75%	100%	75%	+2%	\$173,804,348	\$227,163,493	\$199,894,400	\$231,843,389	\$190,655,914	\$183,998,201	1	5	4	6	3	2	TRUE	TRUE	\$10,193,852		
26	75%	100%	100%	-2%	\$160,865,130	\$212,957,924	\$185,432,146	\$218,442,528	\$177,768,445	\$170,718,219	1	5	4	6	3	2	TRUE	TRUE	\$9,853,089		
27	75%	100%	100%	-1 plant	\$175,082,159	\$228,365,751	\$201,068,001	\$233,370,487	\$192,015,085	\$185,167,052	1	5	4	6	3	2	TRUE	TRUE	\$10,084,893		
28	75%	100%	100%	None	\$176,988,706	\$230,452,420	\$203,186,095	\$235,390,316	\$193,941,154	\$187,117,122	1	5	4	6	3	2	TRUE	TRUE	\$10,128,416		
29	75%	100%	100%	+1 plant	\$178,895,252	\$232,539,089	\$205,304,190	\$237,410,145	\$195,867,222	\$189,067,192	1	5	4	6	3	2	TRUE	TRUE	\$10,171,940		
30	75%	100%	100%	+2%	\$198,504,550	\$253,811,281	\$226,885,112	\$258,000,632	\$215,511,291	\$208,983,088	1	5	4	6	3	2	TRUE	TRUE	\$10,478,538		
31	75%	100%	150%	-2%	\$194,242,033	\$248,638,146	\$221,507,700	\$253,574,226	\$211,389,386	\$204,493,359	1	5	4	6	3	2	TRUE	TRUE	\$10,251,326		
32	75%	100%	150%	-1 plant	\$214,514,583	\$270,691,289	\$243,902,884	\$274,987,307	\$231,711,935	\$225,060,114	1	5	4	6	3	2	TRUE	TRUE	\$10,545,531		
33	75%	100%	150%	None	\$217,231,547	\$273,677,625	\$246,936,358	\$277,884,939	\$234,459,589	\$227,834,812	1	5	4	6	3	2	TRUE	TRUE	\$10,603,264		
34	75%	100%	150%	+1 plant	\$219,948,511	\$276,663,960	\$249,969,831	\$280,782,572	\$237,207,244	\$230,609,509	1	5	4	6	3	2	TRUE	TRUE	\$10,660,998		
35	75%	100%	150%	+2%	\$247,904,953	\$307,106,856	\$280,885,112	\$310,315,120	\$265,222,042	\$258,952,863	1	5	4	6	3	2	TRUE	TRUE	\$11,047,909		
36	75%	100%	200%	-2%	\$227,618,937	\$284,318,369	\$257,583,255	\$288,705,925	\$245,010,320	\$238,268,499	1	5	4	6	3	2	TRUE	TRUE	\$10,649,562		
37	75%	100%	200%	-1 plant	\$253,947,007	\$313,016,827	\$286,737,768	\$316,604,127	\$271,408,784	\$264,953,176	1	5	4	6	3	2	TRUE	TRUE	\$11,006,169		
38	75%	100%	200%	None	\$257,474,389	\$316,902,829	\$290,686,621	\$320,379,562	\$274,978,025	\$268,552,501	1	5	4	6	3	2	TRUE	TRUE	\$11,078,113		
39	75%	100%	200%	+1 plant	\$261,001,770	\$320,788,831	\$294,635,473	\$324,154,998	\$278,547,266	\$272,151,826	1	5	4	6	3	2	TRUE	TRUE	\$11,150,056		
40	75%	100%	200%	+2%	\$297,305,357	\$360,402,431	\$334,878,919	\$362,629,608	\$314,932,802	\$308,922,637	1	5	4	6	3	2	TRUE	TRUE	\$11,617,281		
41	75%	200%	75%	-2%	\$181,972,271	\$280,014,656	\$218,752,309	\$275,563,340	\$206,651,445	\$194,604,422	1	6	4	5	3	2	TRUE	FALSE	\$12,632,152		
42	75%	200%	75%	-1 plant	\$193,161,539	\$292,099,826	\$231,008,499	\$287,248,738	\$217,860,121	\$205,994,294	1	6	4	5	3	2	TRUE	FALSE	\$12,832,755		
43	75%	200%	75%	None	\$194,662,877	\$293,736,661	\$232,668,904	\$288,829,666	\$219,375,396	\$207,532,050	1	6	4	5	3	2	TRUE	FALSE	\$12,869,173		
44	75%	200%	75%	+1 plant	\$196,164,215	\$295,373,497	\$234,329,309	\$290,410,593	\$220,890,671	\$209,069,806	1	6	4	5	3	2	TRUE	FALSE	\$12,905,592		
45	75%	200%	75%	+2%	\$211,599,940	\$312,060,337	\$251,252,340	\$306,530,502	\$236,349,374	\$224,771,974	1	6	4	5	3	2	TRUE	FALSE	\$13,152,033		
46	75%	200%	100%	-2%	\$198,660,722	\$297,854,767	\$236,790,086	\$293,129,189	\$223,461,912	\$211,491,992	1	6	4	5	3	2	TRUE	FALSE	\$12,831,270		
47	75%	200%	100%	-1 plant	\$212,877,751	\$313,262,594	\$252,425,941	\$308,057,148	\$237,708,546	\$225,940,825	1	6	4	5	3	2	TRUE	FALSE	\$13,063,074		
48	75%	200%	100%	None	\$214,784,298	\$315,349,264	\$254,544,035	\$310,076,977	\$239,614,614	\$229,840,965	1	6	4	5	3	2	TRUE	FALSE	\$13,106,597		
49	75%	200%	100%	+1 plant	\$216,690,844	\$317,435,933	\$256,662,130	\$312,096,806	\$241,560,682	\$239,840,965	1	6	4	5	3	2	TRUE	FALSE	\$13,150,121		
50	75%	200%	100%	+2%	\$236,300,142	\$338,708,124	\$278,249,244	\$332,687,294	\$261,204,752	\$249,756,861	1	6	4	5	3	2	TRUE	FALSE	\$13,456,719		
51	75%	200%	150%	-2%	\$232,037,625	\$333,534,989	\$272,865,641	\$328,260,888	\$257,082,846	\$245,267,132	1	6	4	5	3	2	TRUE	FALSE	\$13,229,507		
52	75%	200%	150%	-1 plant	\$252,310,175	\$355,588,132	\$295,260,824	\$349,673,968	\$277,405,395	\$265,833,887	1	6	4	5	3	2	TRUE	FALSE	\$13,523,712		

53	75%	200%	150%	None	\$255,027,139	\$358,574,468	\$298,294,298	\$352,571,601	\$280,153,050	\$268,608,585	1	6	4	5	3	2	TRUE	FALSE	\$13,581,445
54	75%	200%	150%	+1 plant	\$257,744,103	\$361,560,803	\$301,327,772	\$355,469,233	\$282,900,705	\$271,383,282	1	6	4	5	3	2	TRUE	FALSE	\$13,639,179
55	75%	200%	150%	+2%	\$285,700,545	\$392,003,699	\$332,243,052	\$385,001,782	\$310,915,507	\$299,726,636	1	6	4	5	3	2	TRUE	FALSE	\$14,026,090
56	75%	200%	200%	-2%	\$265,414,529	\$369,215,212	\$308,941,195	\$363,392,587	\$290,703,781	\$279,042,272	1	6	4	5	3	2	TRUE	FALSE	\$13,627,743
57	75%	200%	200%	-1 plant	\$291,742,599	\$397,913,670	\$338,095,708	\$391,290,788	\$317,102,244	\$305,726,949	1	6	4	5	3	2	TRUE	FALSE	\$13,984,350
58	75%	200%	200%	None	\$295,269,981	\$401,799,672	\$342,044,561	\$395,066,224	\$320,671,485	\$309,326,274	1	6	4	5	3	2	TRUE	FALSE	\$14,056,293
59	75%	200%	200%	+1 plant	\$298,797,362	\$405,685,674	\$345,993,413	\$398,841,660	\$324,240,727	\$312,925,599	1	6	4	5	3	2	TRUE	FALSE	\$14,128,237
60	75%	200%	200%	+2%	\$335,100,949	\$445,299,274	\$386,236,860	\$437,316,269	\$360,626,262	\$349,696,410	1	6	4	5	3	2	TRUE	FALSE	\$14,595,462
61	100%	75%	75%	-2%	\$141,646,127	\$173,893,602	\$154,554,883	\$189,172,150	\$156,289,723	\$149,685,331	1	5	4	6	4	2	TRUE	FALSE	\$8,039,204
62	100%	75%	75%	-1 plant	\$152,835,395	\$185,978,771	\$166,811,074	\$200,857,548	\$167,498,400	\$161,075,202	1	5	3	6	4	2	TRUE	FALSE	\$8,239,807
63	100%	75%	75%	None	\$154,336,733	\$187,615,607	\$168,471,479	\$202,438,476	\$169,013,675	\$162,612,959	1	5	3	6	4	2	TRUE	FALSE	\$8,276,226
64	100%	75%	75%	+1 plant	\$155,838,071	\$189,252,443	\$170,131,884	\$204,019,403	\$170,528,950	\$164,150,715	1	5	3	6	4	2	TRUE	FALSE	\$8,312,644
65	100%	75%	75%	+2%	\$171,273,796	\$205,939,283	\$187,054,915	\$220,138,860	\$185,987,653	\$179,852,882	1	5	4	6	3	2	TRUE	TRUE	\$8,579,086
66	100%	75%	75%	-2%	\$158,334,578	\$191,733,713	\$172,592,661	\$206,737,999	\$173,100,190	\$166,572,901	1	5	4	6	4	2	TRUE	FALSE	\$8,238,322
67	100%	75%	100%	-1 plant	\$172,551,607	\$207,141,540	\$188,228,515	\$221,665,958	\$187,346,824	\$181,021,733	1	5	4	6	3	2	TRUE	TRUE	\$8,470,126
68	100%	75%	100%	None	\$174,458,154	\$209,228,210	\$190,346,610	\$223,685,787	\$189,272,893	\$182,971,803	1	5	4	6	3	2	TRUE	TRUE	\$8,513,650
69	100%	75%	100%	+1 plant	\$176,364,700	\$211,314,879	\$192,464,705	\$225,705,616	\$191,198,961	\$184,921,874	1	5	4	6	3	2	TRUE	TRUE	\$8,557,173
70	100%	75%	100%	+2%	\$195,973,998	\$232,587,070	\$214,051,819	\$246,296,104	\$210,843,030	\$200,837,769	1	5	4	6	3	2	TRUE	TRUE	\$8,663,771
71	100%	75%	100%	-2%	\$191,711,482	\$227,413,935	\$208,668,215	\$241,869,698	\$206,721,125	\$204,348,041	1	5	4	6	3	2	TRUE	TRUE	\$8,636,559
72	100%	75%	150%	-1 plant	\$211,984,031	\$249,467,078	\$231,063,399	\$263,282,778	\$227,043,674	\$220,914,796	1	5	4	6	3	2	TRUE	TRUE	\$8,930,764
73	100%	75%	150%	None	\$214,700,995	\$252,453,414	\$234,096,873	\$266,180,411	\$229,791,328	\$223,689,493	1	5	4	6	3	2	TRUE	TRUE	\$8,988,498
74	100%	75%	150%	+1 plant	\$217,417,959	\$255,439,749	\$237,130,346	\$269,078,043	\$232,538,983	\$226,464,191	1	5	4	6	3	2	TRUE	TRUE	\$9,046,231
75	100%	75%	150%	+2%	\$245,374,401	\$285,882,645	\$268,045,627	\$298,610,592	\$260,553,786	\$254,807,544	1	5	4	6	3	2	TRUE	TRUE	\$9,433,143
76	100%	75%	200%	-2%	\$225,088,385	\$263,094,158	\$244,743,777	\$277,001,397	\$240,342,059	\$234,123,180	1	5	4	6	3	2	TRUE	TRUE	\$9,034,795
77	100%	75%	200%	-1 plant	\$251,416,456	\$291,792,616	\$273,898,283	\$304,899,598	\$266,740,523	\$260,807,858	1	5	4	6	3	2	TRUE	TRUE	\$9,391,402
78	100%	75%	200%	None	\$254,943,837	\$295,678,618	\$277,847,135	\$308,675,034	\$270,309,764	\$264,407,183	1	5	4	6	3	2	TRUE	TRUE	\$9,463,346
79	100%	75%	200%	+1 plant	\$258,471,218	\$299,564,620	\$281,795,988	\$314,450,470	\$273,879,005	\$268,006,508	1	5	4	6	3	2	TRUE	TRUE	\$9,535,290
80	100%	75%	200%	+2%	\$294,774,805	\$339,178,220	\$322,039,434	\$350,925,079	\$310,264,541	\$304,777,319	1	5	4	6	3	2	TRUE	TRUE	\$10,002,514
81	100%	100%	75%	-2%	\$151,095,025	\$195,117,812	\$167,394,368	\$207,843,815	\$167,713,088	\$159,878,774	1	5	3	6	4	2	TRUE	FALSE	\$8,783,749
82	100%	100%	75%	-1 plant	\$162,284,293	\$207,202,982	\$179,650,559	\$219,529,214	\$178,921,765	\$171,268,646	1	5	4	6	3	2	TRUE	TRUE	\$8,984,352
83	100%	100%	75%	None	\$163,785,631	\$208,839,818	\$181,310,964	\$221,110,141	\$180,437,040	\$172,806,402	1	5	4	6	3	2	TRUE	TRUE	\$9,020,771
84	100%	100%	75%	+1 plant	\$165,286,969	\$210,476,654	\$182,971,369	\$222,691,069	\$181,952,315	\$174,344,158	1	5	4	6	3	2	TRUE	TRUE	\$9,057,189
85	100%	100%	75%	+2%	\$180,722,694	\$227,163,493	\$199,894,400	\$238,810,526	\$197,411,018	\$190,046,325	1	5	4	6	3	2	TRUE	TRUE	\$9,323,631
86	100%	100%	100%	-2%	\$167,783,476	\$212,957,924	\$185,432,146	\$225,409,664	\$184,523,556	\$176,766,344	1	5	4	6	3	2	TRUE	TRUE	\$8,982,868
87	100%	100%	100%	-1 plant	\$182,000,505	\$228,365,751	\$201,068,001	\$240,337,624	\$198,770,190	\$191,215,177	1	5	4	6	3	2	TRUE	TRUE	\$9,214,671
88	100%	100%	100%	None	\$183,907,052	\$230,452,420	\$203,186,095	\$242,357,453	\$200,696,258	\$193,165,247	1	5	4	6	3	2	TRUE	TRUE	\$9,258,195
89	100%	100%	100%	+1 plant	\$185,813,598	\$232,539,089	\$205,304,190	\$244,377,282	\$202,622,326	\$195,115,317	1	5	4	6	3	2	TRUE	TRUE	\$9,301,718
90	100%	100%	100%	+2%	\$205,422,896	\$253,811,281	\$226,891,304	\$264,967,769	\$222,266,396	\$215,031,213	1	5	4	6	3	2	TRUE	TRUE	\$9,608,317
91	100%	100%	150%	-2%	\$201,160,380	\$248,638,146	\$221,507,700	\$260,541,363	\$218,144,490	\$210,541,484	1	5	4	6	3	2	TRUE	TRUE	\$9,381,104
92	100%	100%	150%	-1 plant	\$221,432,929	\$270,691,289	\$243,902,884	\$281,954,444	\$238,467,039	\$231,108,239	1	5	4	6	3	2	TRUE	TRUE	\$9,675,309
93	100%	100%	150%	None	\$224,149,893	\$273,677,625	\$246,936,358	\$284,852,076	\$241,214,693	\$233,882,936	1	5	4	6	3	2	TRUE	TRUE	\$9,733,043
94	100%	100%	150%	+1 plant	\$226,866,857	\$276,663,960	\$249,969,831	\$287,749,709	\$243,962,348	\$236,657,634	1	5	4	6	3	2	TRUE	TRUE	\$9,790,777
95	100%	100%	150%	+2%	\$254,823,299	\$307,106,856	\$280,885,112	\$317,282,257	\$271,977,151	\$265,000,987	1	5	4	6	3	2	TRUE	TRUE	\$10,177,688
96	100%	100%	200%	-2%	\$234,537,283	\$284,318,369	\$257,583,255	\$295,673,062	\$251,765,424	\$244,316,624	1	5	4	6	3	2	TRUE	TRUE	\$9,779,341
97	100%	100%	200%	-1 plant	\$260,865,354	\$313,016,827	\$286,737,768	\$323,571,264	\$278,163,888	\$271,001,301	1	5	4	6	3	2	TRUE	TRUE	\$10,135,947
98	100%	100%	200%	None	\$264,392,735	\$316,902,829	\$290,686,621	\$327,346,699	\$281,733,129	\$274,600,626	1	5	4	6	3	2	TRUE	TRUE	\$10,207,891
99	100%	100%	200%	+1 plant	\$267,920,116	\$320,788,831	\$294,635,473	\$331,122,135	\$285,302,370	\$278,199,951	1	5	4	6	3	2	TRUE	TRUE	\$10,279,835
100	100%	100%	200%	+2%	\$304,223,703	\$360,402,431	\$334,878,919	\$369,596,745	\$321,687,906	\$314,970,762	1	5	4	6	3	2	TRUE	TRUE	\$10,747,059
101	100%	200%	75%	-2%	\$188,890,617	\$280,014,656	\$218,752,309	\$282,530,477	\$213,406,549	\$200,652,547	1	5	4	6	3	2	TRUE	TRUE	\$11,761,930
102	100%	200%	75%	-1 plant	\$200,079,885	\$292,099,826	\$231,008,499	\$294,215,875	\$224,615,226	\$212,042,418	1	5	4	6	3	2	TRUE	TRUE	\$11,962,533
103	100%	200%	75%	None	\$201,581,223	\$293,736,661	\$232,668,904	\$295,796,803	\$226,130,500	\$213,580,175	1	5	4	6	3	2	TRUE	TRUE	\$11,998,952
104	100%	200%	75%	+1 plant	\$203,082,561	\$295,373,497	\$234,329,309	\$297,377,730	\$227,645,775	\$215,117,931	1	5	4	6	3	2	TRUE	TRUE	\$12,035,370
105	100%	200%	75%	+2%	\$218,518,286	\$312,060,337	\$251,252,340	\$313,497,187	\$243,104,478	\$230,820,098	1	5	4	6	3	2	TRUE	TRUE	\$12,301,812
106	100%	200%	100%	-2%	\$205,579,068	\$297,854,767	\$236,790,086	\$300,096,326	\$230,217,016	\$217,540,117	1	5	4	6	3	2	TRUE	TRUE	\$11,961,048
107	100%	200%	100%	-1 plant	\$219,796,097	\$313,262,594	\$252,425,941	\$315,024,285	\$244,463,650	\$231,988,950	1	5	4	6	3	2	TRUE	TRUE	\$12,192,852
108	100%	200%	100%	None	\$221,702,644	\$315,349,264	\$254,544,035	\$317,044,114	\$246,389,718	\$233,939,020	1	5	4	6	3	2	TRUE	TRUE	\$12,236,376

109	100%	200%	100%	+1 plant	\$223,609,190	\$317,435,933	\$256,662,130	\$319,063,943	\$248,315,786	\$235,889,090	1	5	4	6	3	2	\$12,279,899
110	100%	200%	100%	+2%	\$243,218,488	\$338,708,124	\$278,249,244	\$339,654,431	\$267,959,856	\$255,804,986	1	5	4	6	3	2	\$12,586,498
111	100%	200%	150%	-2%	\$238,959,972	\$333,534,989	\$272,865,641	\$335,228,025	\$263,837,950	\$251,315,257	1	5	4	6	3	2	\$12,359,285
112	100%	200%	150%	-1 plant	\$259,228,521	\$355,588,132	\$295,260,824	\$356,641,105	\$284,160,499	\$271,882,012	1	5	4	6	3	2	\$12,653,490
113	100%	200%	150%	None	\$261,945,485	\$358,574,468	\$298,294,298	\$359,538,738	\$286,908,154	\$274,656,709	1	5	4	6	3	2	\$12,711,224
114	100%	200%	150%	+1 plant	\$264,662,449	\$361,560,803	\$301,327,772	\$362,436,370	\$289,655,809	\$277,431,407	1	5	4	6	3	2	\$12,768,958
115	100%	200%	150%	+2%	\$292,618,891	\$392,003,699	\$332,243,052	\$391,968,919	\$317,670,611	\$305,774,760	1	6	4	5	3	2	\$13,155,869
116	100%	200%	200%	-2%	\$272,332,875	\$369,215,217	\$308,941,195	\$370,359,724	\$297,458,885	\$285,090,397	1	5	4	6	3	2	\$12,757,522
117	100%	200%	200%	-1 plant	\$298,660,946	\$397,913,670	\$338,095,708	\$398,257,925	\$323,857,348	\$311,775,074	1	5	4	6	3	2	\$13,114,128
118	100%	200%	200%	None	\$302,188,327	\$401,799,672	\$342,044,561	\$402,033,361	\$327,426,590	\$315,374,399	1	5	4	6	3	2	\$13,186,072
119	100%	200%	200%	+1 plant	\$305,715,708	\$405,685,674	\$345,993,413	\$405,808,797	\$330,995,831	\$318,973,724	1	5	4	6	3	2	\$13,258,016
120	100%	200%	200%	+2%	\$342,019,295	\$445,299,274	\$386,236,860	\$444,283,406	\$367,381,366	\$355,744,535	1	6	4	5	3	2	\$13,725,240
121	150%	75%	75%	-2%	\$155,482,819	\$173,893,607	\$154,554,883	\$203,106,424	\$169,799,932	\$161,781,580	2	5	1	2	4	3	\$927,936
122	150%	75%	75%	-1 plant	\$166,672,088	\$185,978,771	\$166,811,074	\$214,791,822	\$181,008,608	\$173,171,452	1	5	2	6	4	3	\$138,986
123	150%	75%	75%	None	\$168,173,425	\$187,615,607	\$168,471,479	\$216,372,750	\$182,523,883	\$174,709,208	1	5	2	6	4	3	\$298,053
124	150%	75%	75%	+1 plant	\$169,674,763	\$189,252,443	\$170,131,884	\$217,953,677	\$184,039,158	\$176,246,964	1	5	2	6	4	3	\$457,120
125	150%	75%	75%	+2%	\$185,110,489	\$205,939,283	\$187,054,915	\$234,073,134	\$199,497,861	\$191,949,132	1	5	2	6	4	3	\$1,944,426
126	150%	75%	100%	-2%	\$172,171,271	\$191,733,713	\$172,592,661	\$220,672,273	\$186,610,399	\$178,669,150	1	5	2	6	4	3	\$421,390
127	150%	75%	100%	None	\$186,388,300	\$207,141,540	\$188,228,515	\$235,600,232	\$200,857,033	\$193,117,983	1	5	2	6	4	3	\$1,840,216
128	150%	75%	100%	None	\$188,294,846	\$209,228,210	\$190,346,610	\$237,620,061	\$202,783,101	\$195,068,053	1	5	2	6	4	3	\$2,051,764
129	150%	75%	100%	+1 plant	\$190,201,393	\$211,314,879	\$192,464,705	\$239,639,890	\$204,709,169	\$197,018,123	1	5	2	6	4	3	\$2,263,312
130	150%	75%	100%	+2%	\$209,810,690	\$232,587,070	\$214,051,819	\$260,230,378	\$224,353,239	\$216,934,019	1	5	2	6	4	3	\$4,241,129
131	150%	75%	150%	-2%	\$205,548,174	\$227,413,975	\$208,668,215	\$255,803,972	\$220,231,333	\$212,444,290	1	5	2	6	4	3	\$3,120,041
132	150%	75%	150%	-1 plant	\$225,820,724	\$249,467,028	\$231,063,399	\$270,217,052	\$240,553,882	\$233,011,045	1	5	2	6	4	3	\$5,242,675
133	150%	75%	150%	None	\$228,537,688	\$252,453,414	\$234,096,873	\$280,114,685	\$243,301,537	\$235,785,743	1	5	2	6	4	3	\$5,559,185
134	150%	75%	150%	+1 plant	\$231,254,652	\$255,439,749	\$237,130,346	\$283,012,317	\$246,049,191	\$238,560,440	1	5	2	6	4	3	\$5,875,695
135	150%	75%	150%	+2%	\$259,211,094	\$285,882,645	\$268,045,627	\$312,544,866	\$274,063,994	\$266,902,794	1	5	3	6	4	2	\$7,692,700
136	150%	75%	200%	-2%	\$238,925,077	\$263,094,158	\$244,743,770	\$290,935,671	\$253,852,268	\$246,219,430	1	5	2	6	4	3	\$5,818,693
137	150%	75%	200%	-1 plant	\$265,253,148	\$291,792,616	\$273,898,283	\$318,833,872	\$280,250,731	\$272,904,107	1	5	2	6	4	2	\$7,650,959
138	150%	75%	200%	None	\$268,780,529	\$295,678,618	\$277,847,135	\$322,609,308	\$283,819,972	\$276,503,432	1	5	3	6	4	2	\$7,722,903
139	150%	75%	200%	+1 plant	\$272,307,911	\$299,564,620	\$281,795,988	\$326,384,744	\$287,389,214	\$280,102,757	1	5	3	6	4	2	\$7,794,847
140	150%	75%	200%	+2%	\$308,611,497	\$339,178,220	\$322,039,434	\$364,859,353	\$323,774,749	\$316,873,568	1	5	3	6	4	2	\$8,262,071
141	150%	100%	75%	-2%	\$164,931,717	\$195,117,812	\$167,394,368	\$221,778,089	\$181,223,297	\$171,975,023	1	5	2	6	4	3	\$2,462,651
142	150%	100%	75%	-1 plant	\$176,120,986	\$207,202,982	\$179,650,559	\$233,463,487	\$192,431,973	\$183,364,895	1	5	2	6	4	3	\$3,529,573
143	150%	100%	75%	None	\$177,622,323	\$208,839,818	\$181,310,964	\$235,044,415	\$193,947,248	\$184,902,651	1	5	2	6	4	3	\$3,688,640
144	150%	100%	75%	+1 plant	\$179,123,661	\$210,476,654	\$182,971,369	\$236,625,342	\$195,462,523	\$186,440,408	1	5	2	6	4	3	\$3,847,707
145	150%	100%	75%	+2%	\$194,559,387	\$227,163,493	\$199,894,400	\$252,744,799	\$210,921,226	\$202,142,575	1	5	2	6	4	3	\$5,335,013
146	150%	100%	100%	-2%	\$181,620,169	\$212,957,924	\$185,432,146	\$239,343,938	\$198,033,764	\$188,862,593	1	5	2	6	4	3	\$3,811,977
147	150%	100%	100%	-1 plant	\$195,837,198	\$228,365,751	\$201,068,001	\$254,271,897	\$212,280,358	\$203,311,426	1	5	2	6	4	3	\$5,230,803
148	150%	100%	100%	None	\$197,743,744	\$230,452,420	\$203,186,095	\$256,291,727	\$214,206,466	\$205,261,496	1	5	2	6	4	3	\$5,442,351
149	150%	100%	100%	+1 plant	\$199,650,291	\$232,539,089	\$205,304,190	\$258,311,556	\$216,132,534	\$207,211,566	1	5	2	6	4	3	\$5,653,899
150	150%	100%	100%	+2%	\$219,259,588	\$253,811,281	\$226,891,304	\$278,902,043	\$235,776,604	\$227,427,462	1	5	2	6	4	3	\$7,631,716
151	150%	100%	150%	-2%	\$214,997,072	\$248,638,126	\$221,507,700	\$274,475,637	\$231,654,698	\$222,637,733	1	5	2	6	4	3	\$6,510,628
152	150%	100%	150%	-1 plant	\$235,269,622	\$270,691,289	\$243,902,884	\$295,888,717	\$251,977,247	\$243,204,488	1	5	3	6	4	2	\$7,934,866
153	150%	100%	150%	None	\$237,986,586	\$273,677,625	\$246,936,358	\$298,786,350	\$254,724,902	\$245,979,186	1	5	3	6	4	2	\$7,992,600
154	150%	100%	150%	+1 plant	\$240,703,550	\$276,663,960	\$249,969,831	\$301,683,982	\$257,472,557	\$248,753,883	1	5	3	6	4	2	\$8,050,334
155	150%	100%	150%	+2%	\$268,659,992	\$307,106,856	\$280,885,112	\$331,216,531	\$285,487,359	\$277,097,237	1	5	3	6	4	2	\$8,437,245
156	150%	100%	200%	-2%	\$248,373,975	\$284,318,369	\$257,583,255	\$309,607,336	\$265,275,633	\$256,412,873	1	5	3	6	4	2	\$8,038,898
157	150%	100%	200%	-1 plant	\$274,702,046	\$313,016,827	\$286,737,768	\$337,505,537	\$291,674,096	\$283,097,550	1	5	3	6	4	2	\$8,395,504
158	150%	100%	200%	None	\$278,229,427	\$316,902,829	\$290,686,621	\$341,280,973	\$295,243,337	\$286,696,876	1	5	3	6	4	2	\$8,467,448
159	150%	100%	200%	+1 plant	\$281,756,809	\$320,788,831	\$294,635,473	\$345,056,409	\$298,812,579	\$290,296,201	1	5	3	6	4	2	\$8,539,392
160	150%	100%	200%	+2%	\$318,060,395	\$360,402,431	\$334,878,919	\$383,531,019	\$335,198,114	\$327,067,012	1	5	3	6	4	2	\$9,006,616
161	150%	200%	75%	-2%	\$202,727,309	\$280,014,656	\$218,752,309	\$296,464,751	\$226,916,757	\$212,748,796	1	5	3	6	4	2	\$10,021,487
162	150%	200%	75%	-1 plant	\$213,916,578	\$292,099,826	\$231,008,499	\$308,150,149	\$238,125,434	\$224,138,668	1	5	3	6	4	2	\$10,222,090
163	150%	200%	75%	None	\$215,417,915	\$293,736,661	\$232,668,904	\$309,731,076	\$239,640,709	\$225,676,424	1	5	3	6	4	2	\$10,258,509
164	150%	200%	75%	+1 plant	\$216,919,253	\$295,373,497	\$234,329,309	\$311,312,004	\$241,155,984	\$227,214,181	1	5	3	6	4	2	\$10,294,927

165	150%	200%	75%	+2%	\$232,354,979	\$312,060,337	\$251,252,340	\$327,431,461	\$256,614,687	\$242,916,348	1	5	3	6	4	2	TRUE	FALSE	\$10,561,369	
166	150%	200%	100%	-2%	\$219,415,761	\$297,854,767	\$236,790,086	\$314,030,600	\$243,727,224	\$229,636,366	1	5	3	6	4	2	TRUE	FALSE	\$10,220,606	
167	150%	200%	100%	-1 plant	\$233,632,790	\$313,262,594	\$252,425,941	\$328,958,559	\$257,973,858	\$244,085,199	1	5	3	6	4	2	TRUE	FALSE	\$10,452,409	
168	150%	200%	100%	None	\$235,539,336	\$315,349,264	\$254,544,035	\$330,978,388	\$259,899,977	\$246,035,269	1	5	3	6	4	2	TRUE	FALSE	\$10,495,933	
169	150%	200%	100%	+1 plant	\$237,445,883	\$317,435,933	\$256,662,130	\$332,998,217	\$261,825,995	\$247,985,339	1	5	3	6	4	2	TRUE	FALSE	\$10,539,456	
170	150%	200%	100%	+2%	\$257,055,180	\$338,708,124	\$278,249,244	\$353,588,705	\$281,470,064	\$267,901,235	1	5	3	6	4	2	TRUE	FALSE	\$10,846,055	
171	150%	200%	150%	-2%	\$252,792,664	\$333,534,989	\$272,865,641	\$349,162,299	\$277,348,159	\$263,411,506	1	5	3	6	4	2	TRUE	FALSE	\$10,618,842	
172	150%	200%	150%	-1 plant	\$273,065,214	\$355,588,132	\$295,260,824	\$370,575,379	\$297,670,708	\$283,978,261	1	5	3	6	4	2	TRUE	FALSE	\$10,913,047	
173	150%	200%	150%	None	\$275,782,178	\$358,574,468	\$298,294,298	\$373,473,011	\$300,418,362	\$286,752,959	1	5	3	6	4	2	TRUE	FALSE	\$10,970,781	
174	150%	200%	150%	+1 plant	\$278,499,142	\$361,560,803	\$301,327,772	\$376,370,644	\$303,166,017	\$289,527,656	1	5	3	6	4	2	TRUE	FALSE	\$11,028,515	
175	150%	200%	150%	+2%	\$306,455,584	\$392,003,699	\$332,243,052	\$405,903,193	\$331,180,820	\$317,871,010	1	5	4	6	6	3	2	TRUE	TRUE	\$11,415,426
176	150%	200%	200%	-2%	\$286,169,567	\$369,215,212	\$308,941,195	\$384,293,998	\$310,969,093	\$297,186,646	1	5	3	6	4	2	TRUE	FALSE	\$11,017,079	
177	150%	200%	200%	-1 plant	\$312,027,638	\$397,913,670	\$338,095,708	\$412,192,199	\$337,367,557	\$323,871,323	1	5	4	6	3	2	TRUE	TRUE	\$11,373,685	
178	150%	200%	200%	None	\$316,495,019	\$401,799,672	\$342,044,561	\$415,967,635	\$340,936,798	\$327,470,648	1	5	4	6	3	2	TRUE	TRUE	\$11,445,629	
179	150%	200%	200%	+1 plant	\$319,552,401	\$405,685,674	\$345,993,413	\$419,743,071	\$344,506,039	\$331,069,974	1	5	4	6	3	2	TRUE	TRUE	\$11,517,573	
180	150%	200%	200%	+2%	\$355,855,987	\$445,299,274	\$386,236,860	\$458,217,680	\$380,891,575	\$367,840,785	1	5	4	6	3	2	TRUE	TRUE	\$11,984,797	
181	200%	75%	75%	-2%	\$169,319,511	\$173,893,602	\$154,554,883	\$217,040,697	\$183,310,140	\$173,877,830	2	4	1	6	6	3	FALSE	FALSE	\$14,764,628	
182	200%	75%	75%	-1 plant	\$180,508,780	\$185,978,771	\$166,811,074	\$228,726,096	\$194,518,817	\$185,267,701	2	4	1	6	5	3	FALSE	FALSE	\$13,697,706	
183	200%	75%	75%	None	\$182,010,118	\$187,615,607	\$168,471,479	\$230,307,023	\$196,034,092	\$186,805,457	2	4	1	6	5	3	FALSE	FALSE	\$13,538,639	
184	200%	75%	75%	+1 plant	\$183,511,456	\$189,252,443	\$170,131,884	\$231,887,951	\$197,549,366	\$188,343,214	2	4	1	6	5	3	FALSE	FALSE	\$13,379,572	
185	200%	75%	75%	+2%	\$198,947,181	\$205,939,283	\$187,054,915	\$248,007,408	\$213,008,069	\$204,045,381	2	4	1	6	5	3	FALSE	FALSE	\$11,892,266	
186	200%	75%	100%	-2%	\$186,007,963	\$191,733,713	\$172,592,661	\$234,606,547	\$200,120,607	\$190,765,399	2	4	1	6	5	3	FALSE	FALSE	\$13,415,302	
187	200%	75%	100%	-1 plant	\$200,224,992	\$207,141,540	\$188,228,515	\$249,534,506	\$214,367,241	\$205,214,232	2	4	1	6	5	3	FALSE	FALSE	\$11,996,477	
188	200%	75%	100%	None	\$202,131,539	\$209,228,210	\$190,346,610	\$251,554,335	\$216,293,309	\$207,164,302	2	4	1	6	5	3	FALSE	FALSE	\$11,784,929	
189	200%	75%	100%	+1 plant	\$204,038,085	\$211,314,879	\$192,464,705	\$253,574,164	\$218,219,378	\$209,114,372	2	4	1	6	5	3	FALSE	FALSE	\$11,573,381	
190	200%	75%	100%	+2%	\$223,647,383	\$232,587,070	\$214,051,819	\$274,164,652	\$237,863,447	\$229,030,268	2	4	1	6	5	3	FALSE	FALSE	\$9,595,564	
191	200%	75%	150%	-2%	\$219,384,866	\$227,413,935	\$208,668,215	\$269,738,246	\$233,741,541	\$224,540,539	2	4	1	6	5	3	FALSE	FALSE	\$10,716,651	
192	200%	75%	150%	-1 plant	\$239,657,416	\$249,467,078	\$231,063,399	\$294,151,326	\$254,064,090	\$245,107,294	2	4	1	6	5	3	FALSE	FALSE	\$8,594,017	
193	200%	75%	150%	None	\$242,374,380	\$252,453,414	\$234,096,873	\$294,048,958	\$256,811,745	\$247,881,992	2	4	1	6	5	3	FALSE	FALSE	\$8,277,507	
194	200%	75%	150%	+1 plant	\$245,091,344	\$255,439,749	\$237,130,346	\$296,946,591	\$259,559,400	\$250,656,690	2	4	1	6	5	3	FALSE	FALSE	\$7,960,998	
195	200%	75%	150%	+2%	\$273,047,786	\$285,882,645	\$268,045,627	\$326,479,139	\$287,574,202	\$279,000,043	2	4	1	6	5	3	FALSE	FALSE	\$5,002,159	
196	200%	75%	200%	-2%	\$252,761,770	\$263,094,158	\$244,743,770	\$304,869,944	\$267,362,476	\$258,315,679	2	4	1	6	5	3	FALSE	FALSE	\$8,018,000	
197	200%	75%	200%	-1 plant	\$279,089,840	\$291,792,616	\$273,898,283	\$332,768,146	\$293,760,939	\$285,000,357	2	4	1	6	5	3	FALSE	FALSE	\$5,191,558	
198	200%	75%	200%	None	\$282,617,222	\$295,678,618	\$277,847,135	\$336,543,582	\$297,330,181	\$288,599,682	2	4	1	6	5	3	FALSE	FALSE	\$4,770,086	
199	200%	75%	200%	+1 plant	\$286,144,603	\$299,564,620	\$281,795,988	\$340,319,018	\$300,899,422	\$292,199,007	2	4	1	6	5	3	FALSE	FALSE	\$4,348,615	
200	200%	75%	200%	+2%	\$322,448,190	\$339,178,220	\$322,039,434	\$378,793,627	\$337,284,958	\$328,969,818	2	5	1	6	4	3	FALSE	FALSE	\$408,755	
201	200%	100%	75%	-2%	\$178,768,409	\$195,117,812	\$167,394,368	\$235,712,363	\$194,733,505	\$184,071,273	2	5	1	6	4	3	FALSE	FALSE	\$11,374,041	
202	200%	100%	75%	-1 plant	\$189,957,678	\$207,202,982	\$179,650,559	\$247,397,761	\$205,942,182	\$195,461,144	2	5	1	6	4	3	FALSE	FALSE	\$10,307,119	
203	200%	100%	75%	None	\$191,459,016	\$208,839,818	\$181,310,964	\$248,978,689	\$207,457,457	\$196,998,901	2	5	1	6	4	3	FALSE	FALSE	\$10,148,052	
204	200%	100%	75%	+1 plant	\$192,960,354	\$210,476,654	\$182,971,369	\$250,559,616	\$208,972,732	\$198,536,657	2	5	1	6	4	3	FALSE	FALSE	\$9,988,985	
205	200%	100%	75%	+2%	\$208,396,079	\$227,163,493	\$199,894,400	\$266,679,073	\$224,431,435	\$214,238,824	2	5	1	6	4	3	FALSE	FALSE	\$8,501,679	
206	200%	100%	100%	-2%	\$195,456,861	\$212,957,924	\$185,432,146	\$253,278,212	\$211,543,972	\$200,958,843	2	5	1	6	4	3	FALSE	FALSE	\$10,024,715	
207	200%	100%	100%	-1 plant	\$209,673,890	\$228,365,751	\$201,068,001	\$268,206,171	\$225,790,606	\$215,407,675	2	5	1	6	4	3	FALSE	FALSE	\$8,605,889	
208	200%	100%	100%	None	\$211,580,437	\$230,452,420	\$203,186,095	\$270,226,000	\$227,716,674	\$217,357,746	2	5	1	6	4	3	FALSE	FALSE	\$8,394,341	
209	200%	100%	100%	+1 plant	\$213,486,983	\$232,539,089	\$205,304,190	\$272,245,830	\$229,642,743	\$219,307,816	2	5	1	6	4	3	FALSE	FALSE	\$8,182,794	
210	200%	100%	100%	+2%	\$233,096,281	\$253,811,281	\$226,891,304	\$292,836,317	\$249,286,812	\$239,223,712	2	5	1	6	4	3	FALSE	FALSE	\$6,204,977	
211	200%	100%	150%	-2%	\$228,833,764	\$248,638,146	\$221,507,700	\$288,409,911	\$245,164,907	\$234,733,983	2	5	1	6	4	3	FALSE	FALSE	\$7,326,064	
212	200%	100%	150%	-1 plant	\$249,106,314	\$270,691,289	\$243,902,884	\$309,822,991	\$265,487,455	\$255,300,738	2	5	1	6	4	3	FALSE	FALSE	\$5,203,430	
213	200%	100%	150%	None	\$251,323,278	\$273,672,624	\$246,936,358	\$312,720,621	\$268,235,110	\$258,075,435	2	5	1	6	4	3	FALSE	FALSE	\$4,886,920	
214	200%	100%	150%	+1 plant	\$254,540,242	\$276,663,960	\$249,969,831	\$315,618,256	\$270,982,765	\$260,850,133	2	5	1	6	4	3	FALSE	FALSE	\$4,570,411	
215	200%	100%	150%	+2%	\$282,496,684	\$307,106,856	\$280,885,112	\$345,150,805	\$298,997,567	\$289,193,486	2	5	1	6	4	3	FALSE	FALSE	\$1,611,572	
216	200%	100%	200%	-2%	\$262,210,668	\$284,318,369	\$257,583,255	\$323,541,610	\$278,785,841	\$268,509,122	2	5	1	6	4	3	FALSE	FALSE	\$4,627,413	
217	200%	100%	200%	-1 plant	\$288,538,738	\$313,016,827	\$286,737,768	\$351,439,811	\$305,184,304	\$295,193,800	2	5	1	6	4	3	FALSE	FALSE	\$1,800,971	
218	200%	100%	200%	None	\$292,066,120	\$316,902,829	\$290,686,621	\$355,215,247	\$308,753,546	\$298,793,125	2	5	1	6	4	3	FALSE	FALSE	\$1,379,499	
219	200%	100%	200%	+1 plant	\$295,593,501	\$320,788,831	\$294,635,473	\$358,990,683	\$312,322,787	\$302,392,450	2	5	1	6	4	3	FALSE	FALSE	\$958,028	
220	200%	100%	200%	+2%	\$331,897,088	\$360,402,431	\$334,878,919	\$397,465,293	\$348,708,323	\$339,163,261	1	5	2	6	4	3	TRUE	FALSE	\$2,981,832	



277	300%	100%	200%	-1 plant	\$316,212,123	\$313,016,827	\$286,737,768	\$379,308,359	\$332,204,721	\$319,386,299	3	2	1	1	6	5	4	FALSE	FALSE	\$26,279,059
278	300%	100%	200%	None	\$319,739,504	\$316,902,829	\$290,686,621	\$383,083,795	\$335,773,962	\$322,985,624	3	2	1	1	6	5	4	FALSE	FALSE	\$26,216,208
279	300%	100%	200%	+1 plant	\$323,266,886	\$320,788,831	\$294,635,473	\$386,859,231	\$339,343,204	\$326,584,949	3	2	1	1	6	5	4	FALSE	FALSE	\$26,153,358
280	300%	100%	200%	+2%	\$359,570,472	\$360,402,431	\$334,878,919	\$425,333,840	\$375,728,739	\$363,355,760	2	3	1	1	6	5	4	FALSE	FALSE	\$24,691,553
281	300%	200%	75%	-2%	\$244,237,386	\$280,014,656	\$218,752,309	\$338,267,572	\$267,447,382	\$249,037,545	2	5	1	1	6	4	3	FALSE	FALSE	\$25,485,077
282	300%	200%	75%	-1 plant	\$255,426,655	\$292,099,826	\$231,008,499	\$349,952,971	\$278,656,059	\$260,427,416	2	5	1	1	6	4	3	FALSE	FALSE	\$24,418,156
283	300%	200%	75%	None	\$256,927,992	\$293,736,661	\$232,668,904	\$351,533,898	\$280,171,334	\$261,965,173	2	5	1	1	6	4	3	FALSE	FALSE	\$24,259,089
284	300%	200%	75%	+1 plant	\$258,429,330	\$295,373,497	\$234,329,309	\$353,114,826	\$281,686,609	\$263,502,929	2	5	1	1	6	4	3	FALSE	FALSE	\$24,100,021
285	300%	200%	75%	+2%	\$273,865,056	\$312,060,337	\$251,252,340	\$369,234,283	\$297,145,312	\$279,205,096	2	5	1	1	6	4	3	FALSE	FALSE	\$22,612,715
286	300%	200%	100%	-2%	\$260,925,838	\$297,854,767	\$236,790,086	\$355,833,422	\$284,257,849	\$265,925,115	2	5	1	1	6	4	3	FALSE	FALSE	\$24,135,752
287	300%	200%	100%	-1 plant	\$275,142,867	\$313,262,594	\$252,425,941	\$370,761,381	\$298,504,483	\$280,373,947	2	5	1	1	6	4	3	FALSE	FALSE	\$22,716,926
288	300%	200%	100%	+1 plant	\$277,049,413	\$315,349,264	\$254,544,035	\$372,781,210	\$300,430,552	\$282,324,017	2	5	1	1	6	4	3	FALSE	FALSE	\$22,505,378
289	300%	200%	100%	+1 plant	\$278,955,960	\$317,435,933	\$256,662,130	\$374,801,039	\$302,356,620	\$284,274,087	2	5	1	1	6	4	3	FALSE	FALSE	\$22,293,830
290	300%	200%	100%	+2%	\$298,565,258	\$338,708,124	\$278,249,244	\$395,391,527	\$322,000,689	\$304,189,983	2	5	1	1	6	4	3	FALSE	FALSE	\$20,316,013
291	300%	200%	150%	-2%	\$294,302,741	\$333,534,989	\$272,865,641	\$390,965,120	\$317,878,784	\$299,700,254	2	5	1	1	6	4	3	FALSE	FALSE	\$21,437,100
292	300%	200%	150%	-1 plant	\$314,575,291	\$355,588,132	\$295,260,824	\$412,378,201	\$338,201,333	\$320,267,009	2	5	1	1	6	4	3	FALSE	FALSE	\$19,314,466
293	300%	200%	150%	None	\$317,292,255	\$358,574,468	\$298,294,298	\$415,275,833	\$340,948,987	\$323,041,707	2	5	1	1	6	4	3	FALSE	FALSE	\$18,997,957
294	300%	200%	150%	+1 plant	\$320,009,219	\$361,560,803	\$301,327,772	\$418,173,466	\$343,696,642	\$325,816,405	2	5	1	1	6	4	3	FALSE	FALSE	\$18,681,447
295	300%	200%	150%	+2%	\$347,965,661	\$392,003,699	\$332,243,052	\$447,706,014	\$371,711,445	\$354,159,758	2	5	1	1	6	4	3	FALSE	FALSE	\$15,722,609
296	300%	200%	200%	-2%	\$327,679,644	\$369,215,212	\$308,941,195	\$426,096,819	\$351,499,718	\$333,475,394	2	5	1	1	6	4	3	FALSE	FALSE	\$18,738,449
297	300%	200%	200%	-1 plant	\$354,007,715	\$397,913,670	\$338,095,708	\$453,995,021	\$377,898,182	\$360,160,072	2	5	1	1	6	4	3	FALSE	FALSE	\$15,912,007
298	300%	200%	200%	None	\$357,535,096	\$401,799,672	\$342,044,561	\$457,770,456	\$381,467,423	\$363,759,397	2	5	1	1	6	4	3	FALSE	FALSE	\$15,490,536
299	300%	200%	200%	+1 plant	\$361,062,478	\$405,685,674	\$345,993,413	\$461,545,892	\$385,036,664	\$367,358,722	2	5	1	1	6	4	3	FALSE	FALSE	\$15,069,064
300	300%	200%	200%	+2%	\$397,366,064	\$445,299,274	\$386,236,860	\$500,020,502	\$421,422,200	\$404,129,533	2	5	1	1	6	4	3	FALSE	FALSE	\$11,129,205

## **APPENDIX B: 50-YEAR SENSITIVITY ANALYSIS TABLE**

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Scenario ID	Scenario Inputs				Scenario Results (50 year NPV)							Rank					Same Rank 1?	Same Ranking?	Cost Gap (1st to 2nd)
	Trans. Costs	Cap Costs	Fuel Costs	Load Change	Regional Plant	Islanded	Islanded Life Ext	Local Interconnect	2 Comm Portable	Phased Regional	Regional Plant	Islanded	Islanded Life Ext	Local Interconnect	2 Comm Portable	Phased Regional			
1	75%	75%	75%	-2%	\$158,759,733	\$215,670,199	\$203,250,829	\$219,177,611	\$175,056,108	\$168,328,468	1	5	4	6	3	2	TRUE	TRUE	\$16,296,375
2	75%	75%	75%	-1 plant	\$180,423,707	\$239,032,794	\$226,799,935	\$241,690,818	\$196,739,489	\$190,193,044	1	5	4	6	3	2	TRUE	TRUE	\$16,315,783
3	75%	75%	75%	None	\$182,583,452	\$241,378,702	\$229,170,540	\$243,952,666	\$198,913,172	\$192,389,208	1	5	4	6	3	2	TRUE	TRUE	\$16,329,720
4	75%	75%	75%	+1 plant	\$184,743,198	\$243,724,609	\$231,541,146	\$246,214,515	\$201,086,855	\$194,585,372	1	5	4	6	3	2	TRUE	TRUE	\$16,343,657
5	75%	75%	75%	+2%	\$222,263,316	\$284,180,962	\$272,261,548	\$285,151,626	\$238,629,951	\$232,371,932	1	5	4	6	3	2	TRUE	TRUE	\$16,366,635
6	75%	75%	100%	-2%	\$178,259,049	\$236,596,425	\$224,381,759	\$239,740,954	\$194,677,439	\$188,026,902	1	5	4	6	3	2	TRUE	TRUE	\$16,418,390
7	75%	75%	100%	-1 plant	\$205,636,437	\$266,230,325	\$254,264,339	\$268,360,693	\$222,084,432	\$215,636,094	1	5	4	6	3	2	TRUE	TRUE	\$16,447,995
8	75%	75%	100%	None	\$208,370,952	\$269,212,230	\$257,279,176	\$271,242,262	\$224,838,469	\$218,414,132	1	5	4	6	3	2	TRUE	TRUE	\$16,467,517
9	75%	75%	100%	+1 plant	\$211,105,467	\$272,194,136	\$260,294,012	\$274,123,830	\$227,592,506	\$221,192,171	1	5	4	6	3	2	TRUE	TRUE	\$16,487,039
10	75%	75%	100%	+2%	\$258,435,091	\$323,423,670	\$311,875,610	\$323,542,108	\$274,956,901	\$268,828,393	1	5	4	6	3	2	TRUE	TRUE	\$16,512,811
11	75%	75%	150%	-2%	\$217,257,679	\$278,448,879	\$266,643,621	\$280,867,639	\$232,920,100	\$227,423,768	1	5	4	6	3	2	TRUE	TRUE	\$16,662,421
12	75%	75%	150%	-1 plant	\$256,061,898	\$320,625,386	\$309,193,148	\$321,700,442	\$272,774,318	\$266,522,192	1	5	4	6	3	2	TRUE	TRUE	\$16,712,420
13	75%	75%	150%	None	\$259,945,952	\$324,879,288	\$313,496,446	\$325,821,452	\$276,689,063	\$270,463,980	1	5	4	6	3	2	TRUE	TRUE	\$16,743,111
14	75%	75%	150%	+1 plant	\$263,830,006	\$329,133,189	\$317,999,744	\$329,942,462	\$280,603,808	\$274,405,768	1	5	4	6	3	2	TRUE	TRUE	\$16,773,802
15	75%	75%	150%	+2%	\$330,778,640	\$401,909,085	\$391,103,738	\$400,323,073	\$347,610,802	\$341,741,313	1	5	4	6	3	2	TRUE	FALSE	\$16,832,162
16	75%	75%	200%	-2%	\$256,256,309	\$320,301,333	\$308,905,482	\$321,994,324	\$273,162,761	\$266,820,635	1	5	4	6	3	2	TRUE	TRUE	\$16,906,452
17	75%	75%	200%	-1 plant	\$306,487,358	\$375,020,447	\$364,121,956	\$375,040,190	\$323,464,203	\$317,408,291	1	5	4	6	3	2	TRUE	TRUE	\$16,976,845
18	75%	75%	200%	None	\$311,520,951	\$380,546,345	\$369,713,716	\$380,400,642	\$328,539,657	\$322,513,828	1	6	4	5	3	2	TRUE	FALSE	\$17,018,705
19	75%	75%	200%	+1 plant	\$316,554,544	\$386,072,243	\$375,305,476	\$385,761,093	\$333,615,110	\$327,619,365	1	6	4	5	3	2	TRUE	FALSE	\$17,060,565
20	75%	75%	200%	+2%	\$403,122,189	\$480,394,500	\$470,331,864	\$477,104,037	\$420,264,704	\$414,654,234	1	6	4	5	3	2	TRUE	FALSE	\$17,142,514
21	75%	100%	75%	-2%	\$169,431,664	\$241,698,261	\$223,590,625	\$242,415,892	\$188,158,175	\$179,777,313	1	6	4	5	3	2	TRUE	TRUE	\$18,726,511
22	75%	100%	75%	-1 plant	\$191,095,637	\$265,060,857	\$247,139,731	\$264,929,099	\$209,841,556	\$201,641,890	1	6	4	5	3	2	TRUE	FALSE	\$18,745,919
23	75%	100%	75%	None	\$193,255,383	\$267,406,764	\$249,510,337	\$267,190,948	\$212,015,239	\$203,838,054	1	6	4	5	3	2	TRUE	FALSE	\$18,759,856
24	75%	100%	75%	+1 plant	\$195,415,128	\$269,752,672	\$251,880,942	\$269,452,796	\$214,188,922	\$206,034,218	1	6	4	5	3	2	TRUE	FALSE	\$18,773,793
25	75%	100%	75%	+2%	\$232,935,247	\$310,209,025	\$292,601,345	\$308,389,907	\$251,732,017	\$243,820,778	1	6	4	5	3	2	TRUE	FALSE	\$18,796,771
26	75%	100%	100%	-2%	\$188,930,979	\$262,624,488	\$244,721,556	\$262,979,235	\$207,779,506	\$199,475,747	1	6	4	5	3	2	TRUE	TRUE	\$18,848,526
27	75%	100%	100%	-1 plant	\$216,308,368	\$292,258,387	\$274,604,136	\$291,598,974	\$235,186,499	\$227,084,939	1	6	4	5	3	2	TRUE	FALSE	\$18,878,132
28	75%	100%	100%	None	\$219,042,883	\$295,240,293	\$277,618,972	\$294,480,543	\$237,940,536	\$229,862,978	1	6	4	5	3	2	TRUE	FALSE	\$18,897,653
29	75%	100%	100%	+1 plant	\$221,777,398	\$298,222,198	\$280,633,808	\$297,362,112	\$240,694,573	\$232,641,016	1	6	4	5	3	2	TRUE	FALSE	\$18,917,175
30	75%	100%	100%	+2%	\$269,107,021	\$349,451,732	\$332,215,408	\$346,780,389	\$288,058,968	\$280,277,238	1	6	4	5	3	2	TRUE	FALSE	\$18,951,947
31	75%	100%	150%	-2%	\$227,929,609	\$304,476,942	\$286,983,417	\$304,105,920	\$247,022,167	\$238,872,614	1	6	4	5	3	2	TRUE	FALSE	\$19,092,558
32	75%	100%	150%	-1 plant	\$266,733,828	\$346,653,448	\$329,532,944	\$344,938,723	\$285,876,385	\$277,971,038	1	6	4	5	3	2	TRUE	FALSE	\$19,142,557
33	75%	100%	150%	None	\$270,617,882	\$350,907,350	\$333,836,242	\$349,059,733	\$289,791,130	\$281,912,825	1	6	4	5	3	2	TRUE	FALSE	\$19,173,247
34	75%	100%	150%	+1 plant	\$274,501,936	\$355,161,252	\$338,139,541	\$353,180,743	\$293,705,875	\$285,854,613	1	6	4	5	3	2	TRUE	FALSE	\$19,203,938
35	75%	100%	150%	+2%	\$341,450,571	\$427,937,147	\$411,443,534	\$423,561,354	\$360,712,869	\$353,190,159	1	6	4	5	3	2	TRUE	FALSE	\$19,262,299
36	75%	100%	200%	-2%	\$266,928,240	\$346,329,395	\$329,245,278	\$345,232,606	\$286,264,828	\$278,269,480	1	6	4	5	3	2	TRUE	FALSE	\$19,336,589
37	75%	100%	200%	-1 plant	\$317,159,289	\$401,048,509	\$384,461,753	\$398,278,472	\$336,566,270	\$328,857,136	1	6	4	5	3	2	TRUE	FALSE	\$19,406,981
38	75%	100%	200%	None	\$322,192,882	\$406,574,407	\$390,053,513	\$403,638,923	\$341,641,723	\$333,962,673	1	6	4	5	3	2	TRUE	FALSE	\$19,448,841
39	75%	100%	200%	+1 plant	\$327,226,475	\$412,100,305	\$395,645,273	\$408,999,374	\$346,717,177	\$339,068,210	1	6	4	5	3	2	TRUE	FALSE	\$19,490,701
40	75%	100%	200%	+2%	\$413,794,120	\$506,422,562	\$490,671,660	\$500,342,318	\$433,366,771	\$426,103,080	1	6	4	5	3	2	TRUE	FALSE	\$19,572,650
41	75%	200%	75%	-2%	\$211,119,387	\$345,810,511	\$304,949,811	\$335,369,017	\$240,566,443	\$225,572,695	1	6	4	5	3	2	TRUE	FALSE	\$28,447,056
42	75%	200%	75%	-1 plant	\$233,783,360	\$369,173,107	\$328,498,917	\$357,882,224	\$262,249,824	\$247,437,271	1	6	4	5	3	2	TRUE	FALSE	\$28,466,464
43	75%	200%	75%	None	\$235,943,106	\$371,519,014	\$330,869,523	\$360,144,072	\$264,423,507	\$249,633,435	1	6	4	5	3	2	TRUE	FALSE	\$28,480,401
44	75%	200%	75%	+1 plant	\$238,102,851	\$373,864,921	\$333,240,128	\$362,405,921	\$266,597,189	\$251,829,599	1	6	4	5	3	2	TRUE	FALSE	\$28,494,338
45	75%	200%	75%	+2%	\$275,622,969	\$414,321,275	\$393,960,530	\$401,343,032	\$304,140,285	\$289,616,159	1	6	4	5	3	2	TRUE	FALSE	\$28,517,316
46	75%	200%	100%	-2%	\$231,618,702	\$366,736,738	\$326,080,742	\$355,932,360	\$260,187,713	\$245,271,128	1	6	4	5	3	2	TRUE	FALSE	\$28,569,071
47	75%	200%	100%	-1 plant	\$258,996,090	\$396,370,637	\$355,963,321	\$384,552,098	\$287,594,767	\$272,880,320	1	6	4	5	3	2	TRUE	FALSE	\$28,598,676
48	75%	200%	100%	None	\$261,730,605	\$399,352,543	\$358,978,158	\$387,433,667	\$290,348,804	\$275,658,359	1	6	4	5	3	2	TRUE	FALSE	\$28,618,198
49	75%	200%	100%	+1 plant	\$264,465,120	\$402,334,448	\$361,992,994	\$390,315,236	\$293,102,846	\$278,436,397	1	6	4	5	3	2	TRUE	FALSE	\$28,637,720
50	75%	200%	100%	+2%	\$311,794,744	\$453,563,982	\$434,574,594	\$439,733,514	\$340,467,236	\$326,072,619	1	6	4	5	3	2	TRUE	FALSE	\$28,672,492
51	75%	200%	150%	-2%	\$270,617,332	\$408,589,191	\$368,342,603	\$397,059,045	\$299,430,435	\$284,667,995	1	6	4	5	3	2	TRUE	FALSE	\$28,813,102
52	75%	200%	150%	-1 plant	\$309,421,551	\$450,765,698	\$410,892,130	\$437,891,847	\$338,284,652	\$323,766,419	1	6	4	5	3	2	TRUE	FALSE	\$28,863,101











277	300%	100%	200%	-1 plant	\$382,957,615	\$401,048,509	\$384,461,753	\$464,329,169	\$400,708,673	\$386,823,469	TRUE	FALSE	\$1,504,138
278	300%	100%	200%	None	\$387,991,208	\$406,574,407	\$390,053,513	\$469,689,621	\$405,784,126	\$391,929,006	TRUE	FALSE	\$2,062,305
279	300%	100%	200%	+1 plant	\$393,024,801	\$412,100,305	\$395,645,273	\$475,050,072	\$410,859,579	\$397,034,542	TRUE	FALSE	\$2,620,472
280	300%	100%	200%	+2 plant	\$479,592,446	\$506,422,562	\$490,671,660	\$566,393,016	\$497,509,173	\$484,069,412	TRUE	FALSE	\$11,079,214
281	300%	200%	75%	-2%	\$277,917,713	\$345,810,511	\$304,949,811	\$401,419,715	\$304,708,845	\$283,539,027	TRUE	TRUE	\$26,791,133
282	300%	200%	75%	-1 plant	\$299,581,686	\$369,173,107	\$328,498,917	\$423,932,922	\$326,392,227	\$305,403,603	TRUE	TRUE	\$26,810,541
283	300%	200%	75%	None	\$301,741,431	\$371,519,014	\$330,869,523	\$426,194,770	\$328,565,909	\$307,599,767	TRUE	TRUE	\$26,824,478
284	300%	200%	75%	+1 plant	\$303,901,177	\$373,864,921	\$333,240,128	\$428,456,618	\$330,739,592	\$309,795,931	TRUE	TRUE	\$26,838,415
285	300%	200%	75%	+2 plant	\$341,421,295	\$414,321,275	\$373,960,530	\$467,393,730	\$368,282,688	\$347,582,491	TRUE	TRUE	\$26,861,393
286	300%	200%	100%	-2%	\$297,417,028	\$366,736,738	\$326,080,742	\$421,983,057	\$324,330,176	\$303,237,460	TRUE	TRUE	\$26,913,148
287	300%	200%	100%	-1 plant	\$324,794,416	\$396,370,637	\$355,963,321	\$450,602,796	\$351,737,170	\$330,846,653	TRUE	TRUE	\$26,942,754
288	300%	200%	100%	None	\$327,528,931	\$399,352,543	\$358,978,158	\$453,484,365	\$354,491,206	\$333,624,691	TRUE	TRUE	\$26,962,275
289	300%	200%	100%	+1 plant	\$330,263,446	\$402,334,448	\$361,992,994	\$456,365,934	\$357,245,243	\$336,402,730	TRUE	TRUE	\$26,981,797
290	300%	200%	100%	+2 plant	\$377,593,070	\$463,563,982	\$413,574,594	\$505,784,212	\$404,609,638	\$384,038,952	TRUE	TRUE	\$27,016,569
291	300%	200%	150%	-2%	\$336,415,658	\$408,589,191	\$368,342,603	\$463,109,743	\$363,572,837	\$342,634,327	TRUE	TRUE	\$27,157,180
292	300%	200%	150%	-1 plant	\$375,219,877	\$450,765,698	\$410,892,130	\$503,942,545	\$402,427,055	\$381,732,751	TRUE	TRUE	\$27,207,179
293	300%	200%	150%	None	\$379,103,931	\$455,019,600	\$415,195,428	\$508,063,555	\$406,341,800	\$385,674,539	TRUE	TRUE	\$27,237,869
294	300%	200%	150%	+1 plant	\$382,987,985	\$459,273,502	\$419,498,726	\$512,184,565	\$410,256,545	\$389,616,327	TRUE	TRUE	\$27,268,560
295	300%	200%	150%	+2 plant	\$449,936,619	\$532,049,397	\$492,802,720	\$582,565,176	\$477,263,540	\$456,951,872	TRUE	TRUE	\$27,326,921
296	300%	200%	200%	-2%	\$375,414,288	\$450,441,645	\$410,604,464	\$504,236,428	\$402,815,499	\$382,031,194	TRUE	TRUE	\$27,401,211
297	300%	200%	200%	-1 plant	\$425,645,337	\$505,160,759	\$465,820,938	\$557,282,294	\$453,116,941	\$432,618,850	TRUE	TRUE	\$27,471,603
298	300%	200%	200%	None	\$430,678,930	\$510,686,657	\$471,412,699	\$562,642,745	\$458,192,394	\$437,724,387	TRUE	TRUE	\$27,513,463
299	300%	200%	200%	+1 plant	\$435,712,524	\$516,212,555	\$477,004,459	\$568,003,197	\$463,267,847	\$442,829,924	TRUE	TRUE	\$27,555,323
300	300%	200%	200%	+2 plant	\$522,280,168	\$610,534,812	\$572,030,846	\$659,346,140	\$549,917,441	\$529,864,793	TRUE	TRUE	\$27,637,272



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