



Eastern Interconnection Planning Collaborative

Task 10 Final Results

SSC Meeting – Charlotte, NC

December 4 & 5, 2012

Task 10 – Generation Cost Estimate

- **Cost Estimate Matrix**
 - **Starting Point = Phase I Modeling Assumption**
 - **New generation capacity by fuel type**
 - **Base Capital Cost by fuel type**
 - **NEEM Regional Multiplier**



Generation Cost Estimate Matrix (Base Cost by Fuel Type)

Technology	All-in Capital Cost w/o IDC (\$2010/kW)					
	2011	2015	2020	2025	2030	
Nuclear	5,615	5,462	5,272	5,081	5,081	
Advanced Coal	2,885	2,844	2,793	2,743	2,743	
CC H-Frame	1,035	1,021	1,003	985	985	
CT	711	702	690	678	678	
IGCC	3,262	3,216	3,158	3,101	3,101	
IGCC w/seq	5,389	5,221	5,012	4,802	4,802	
Wind	2,460	2,390	2,303	2,216	2,216	
Wind Offshore	5,997	5,655	5,229	4,802	4,802	
Photovoltaic	4,777	4,505	4,166	3,826	3,826	
Solar Thermal	4,714	4,446	4,111	3,776	3,776	
Landfill Gas	2,525	2,490	2,445	2,400	2,400	
Biomass	3,901	3,680	3,405	3,129	3,129	
Geothermal	4,163	4,045	3,897	3,749	3,749	
US Hydro	3,098	3,098	3,098	3,098	3,098	

Source data: http://www.eipconline.com/Modeling_Results.html in spreadsheet Future_3_Modeling_Assumptions_Master_6-21-2011.xls (Tab Exhibit9)

Note: 2010 costs are assumed to equal 2011 costs.

2015 and 2020 costs are interpolated on a straightline basis between 2010 and 2025.

2030 costs are assumed to equal 2025 costs.



Task 10 – Generation Cost Estimate Matrix

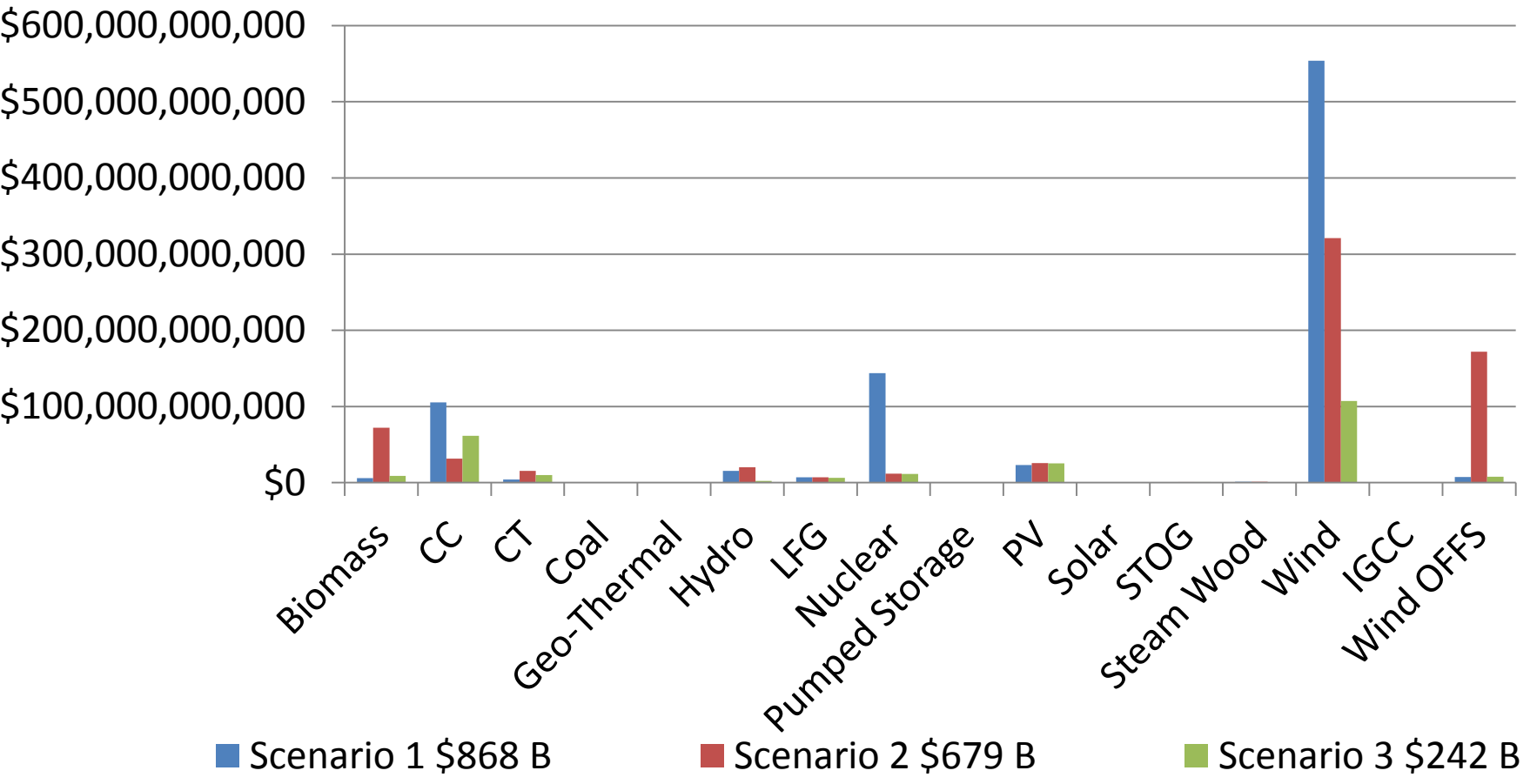
(Regional Multiplier by Fuel Type)

NEEM Region	Nuclear	Adv Coal	CC F-Frame	CC H-Frame	CT F-Frame	IGCC	IGCC w/Seq	Wind	Wind Offshr	Photo-voltaic	Solar Thermal	Landfill Gas	Bio-mass	Geo-thermal
AZ_NM_SNV_Coal	0.976	0.943	1.026	1.026	1.044	0.954	0.945	0.976	1.000	0.938	0.911	0.955	1.000	0.970
ENT	0.975	0.941	0.925	0.933	0.966	0.952	0.943	0.975	1.000	0.935	0.907	0.953	0.919	1.000
ERCOT	0.961	0.897	0.912	0.915	1.012	0.915	0.907	0.952	0.918	0.899	0.858	0.927	0.884	1.000
FRCC	0.979	0.946	0.940	0.942	0.954	0.956	0.955	0.978	1.000	0.955	0.936	0.967	0.943	1.000
MAPP_US and MAPP_CA	0.967	0.913	0.946	0.948	1.013	0.928	0.922	1.021	1.000	0.947	0.912	0.944	0.903	1.000
MISO_IN	1.020	1.035	1.009	1.009	1.017	1.033	1.012	1.003	0.990	0.988	0.981	0.991	1.015	1.000
MISO_MI	1.016	1.040	1.053	1.052	0.970	1.035	1.035	1.027	1.028	1.034	1.048	1.027	1.039	1.000
MISO_MO-IL	1.028	1.077	1.056	1.054	1.010	1.069	1.055	1.036	1.000	1.044	1.057	1.030	1.047	1.000
MISO_W	1.019	1.041	1.045	1.044	0.994	1.036	1.034	1.075	1.048	1.060	1.072	1.023	1.043	1.000
MISO_WUMS	1.010	1.006	0.987	0.987	0.948	1.008	0.989	0.990	0.973	0.966	0.951	0.977	0.990	1.000
NE	0.985	0.961	0.985	0.986	1.343	0.969	0.962	1.035	1.000	0.983	0.965	0.970	0.949	1.000
NEISO	1.053	1.111	1.156	1.153	1.083	1.096	1.061	1.050	1.031	1.032	1.035	1.016	1.074	1.000
NonRTO_Midwest	0.976	0.939	0.946	0.948	0.954	0.951	0.942	0.971	1.000	0.934	0.906	0.952	0.924	1.000
NP15	1.065	1.157	1.205	1.199	1.013	1.137	1.111	1.105	1.000	1.105	1.133	1.057	1.119	1.054
NWPP_Coal	0.985	0.967	0.960	0.962	1.047	0.976	0.954	1.037	1.000	0.962	0.931	0.951	1.000	0.971
NYISO_A-F	1.066	1.120	1.163	1.159	1.056	1.108	1.055	1.008	0.988	0.986	0.976	0.996	1.075	1.000
NYISO_G-I	1.066	1.120	1.163	1.159	1.056	1.108	1.055	1.008	0.988	0.986	0.976	0.996	1.075	1.000
NYISO_J-K	1.134	1.348	1.684	1.664	0.966	1.295	1.314	1.246	1.294	1.366	1.501	1.263	1.383	1.000
OH (IESO)	1.120	-	-	1.200	1.370	-	-	1.110	0.750	0.950	-	1.200	1.040	-
PJM_E	1.049	1.129	1.261	1.253	1.037	1.110	1.113	1.061	1.000	1.116	1.161	1.085	1.131	1.000
PJM_ROM	1.034	1.053	1.204	1.199	1.056	1.050	1.011	1.017	0.979	0.974	0.956	0.983	1.016	1.000
PJM_ROR	1.008	1.005	0.983	0.984	0.998	1.008	0.985	0.981	1.000	0.954	0.934	0.969	0.980	1.000
RMPA	0.974	0.934	1.021	1.021	1.206	0.946	0.937	1.022	1.000	0.956	0.927	0.953	0.918	0.973
SOCO	0.965	0.911	0.934	0.937	0.985	0.927	0.919	0.961	0.930	0.913	0.877	0.937	0.895	1.000
SP15	1.095	1.224	1.290	1.282	1.056	1.198	1.137	1.124	1.077	1.096	1.114	1.052	1.134	0.935
SPP_N	0.972	0.927	0.950	0.957	0.970	0.940	0.931	1.019	1.000	0.949	0.917	0.946	0.909	1.000
SPP_S	0.972	0.927	0.950	0.957	0.970	0.940	0.931	1.019	1.000	0.949	0.917	0.946	0.909	1.000
TVA	0.963	0.903	0.915	0.918	0.985	0.921	0.909	0.954	1.000	0.898	0.856	0.927	0.883	1.000
VACAR	0.959	0.896	0.895	0.909	1.012	0.915	0.899	0.951	0.907	0.884	0.836	0.917	0.866	1.000



Preliminary Results by Fuel Type

Generation Costs Associated with Scenarios



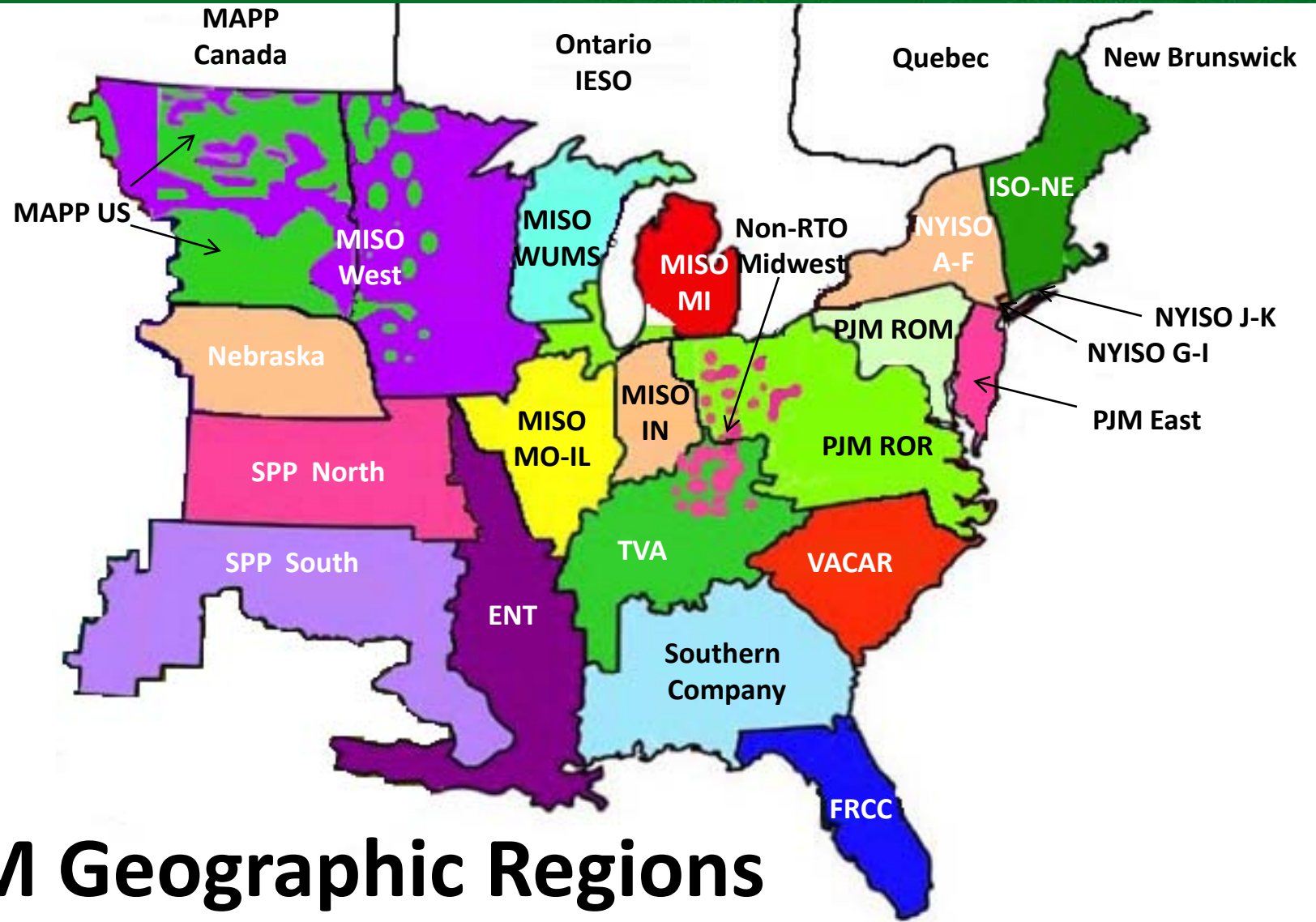


Task 10 – Generation Cost Estimate Matrix

- Include new Peak Gas and Oil with CT**
- S3 Phase I NEEM had only near-term planned builds of coal, nuclear, hydro or pumped storage through 2030, set S3 Task 10 New Capacity to zero for these items**
- To exclude near-term planned builds, include as New Task 10 Capacity only Incremental Amount of Capacity above S3 for Nuclear, Coal, Hydro, Pumped Storage**
- Hydro is assumed to have "1" as the multiplier across all NEEM regions**

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NEEM Geographic Regions



Preliminary Results

*Generation Costs Associated with Scenarios**

- **Scenario 1**
 - \$868,063,727,639

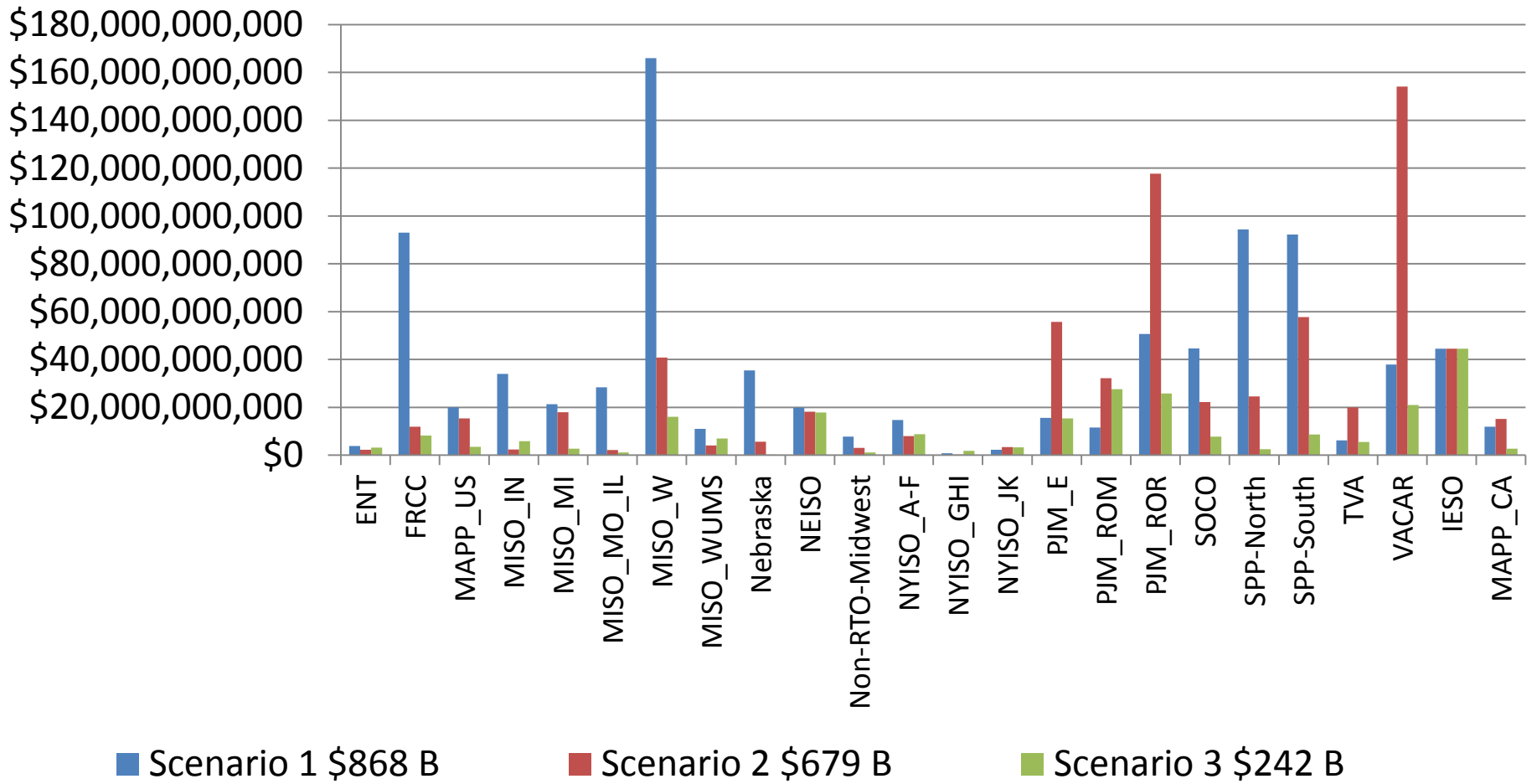
- **Scenario 2**
 - \$679,394,892,380

- **Scenario 3**
 - \$242,306,174,476

*Does not include EE/DR/DG

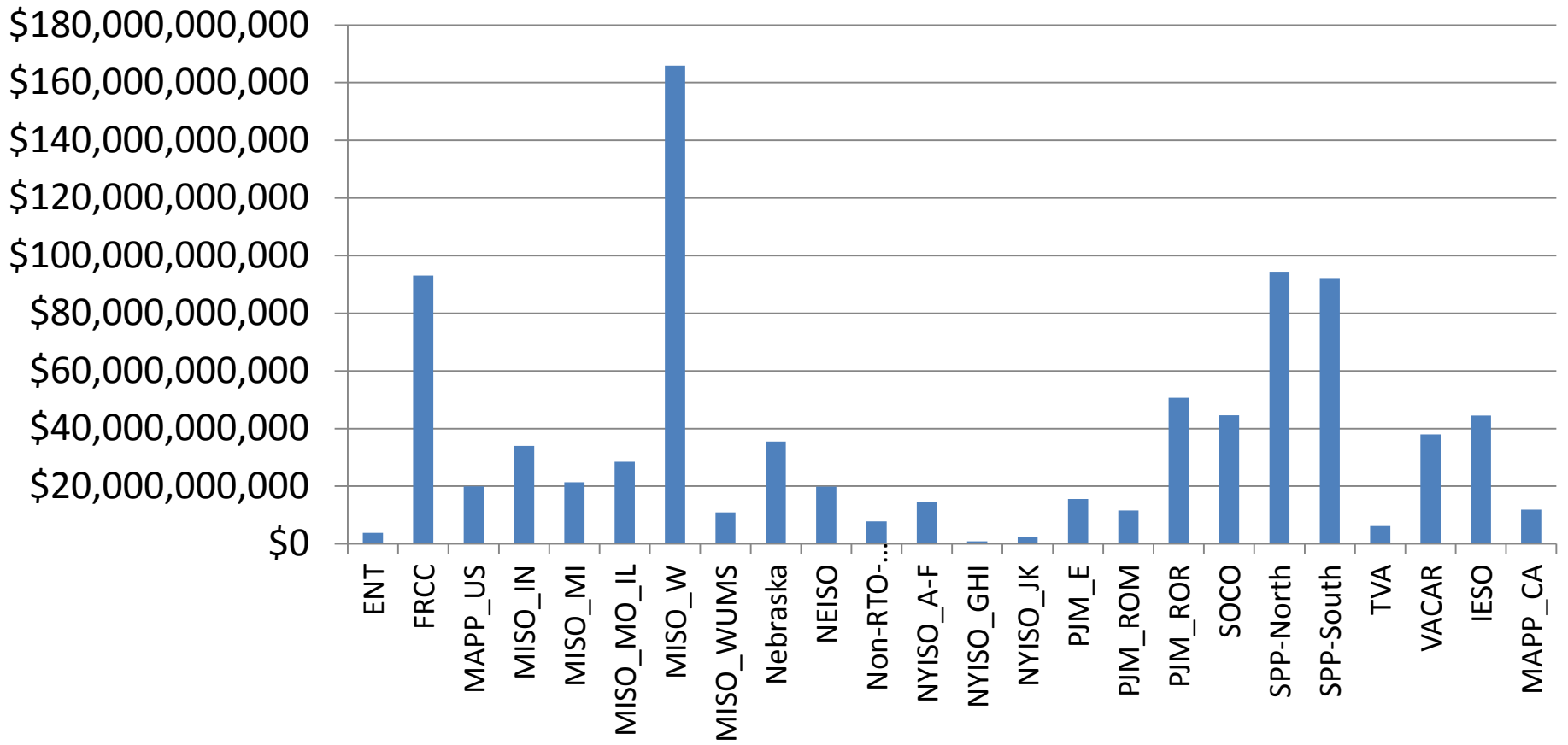
Preliminary Results by Region

Generation Costs Associated with Scenarios



Preliminary Results by Region

Generation Costs Associated with Scenario 1



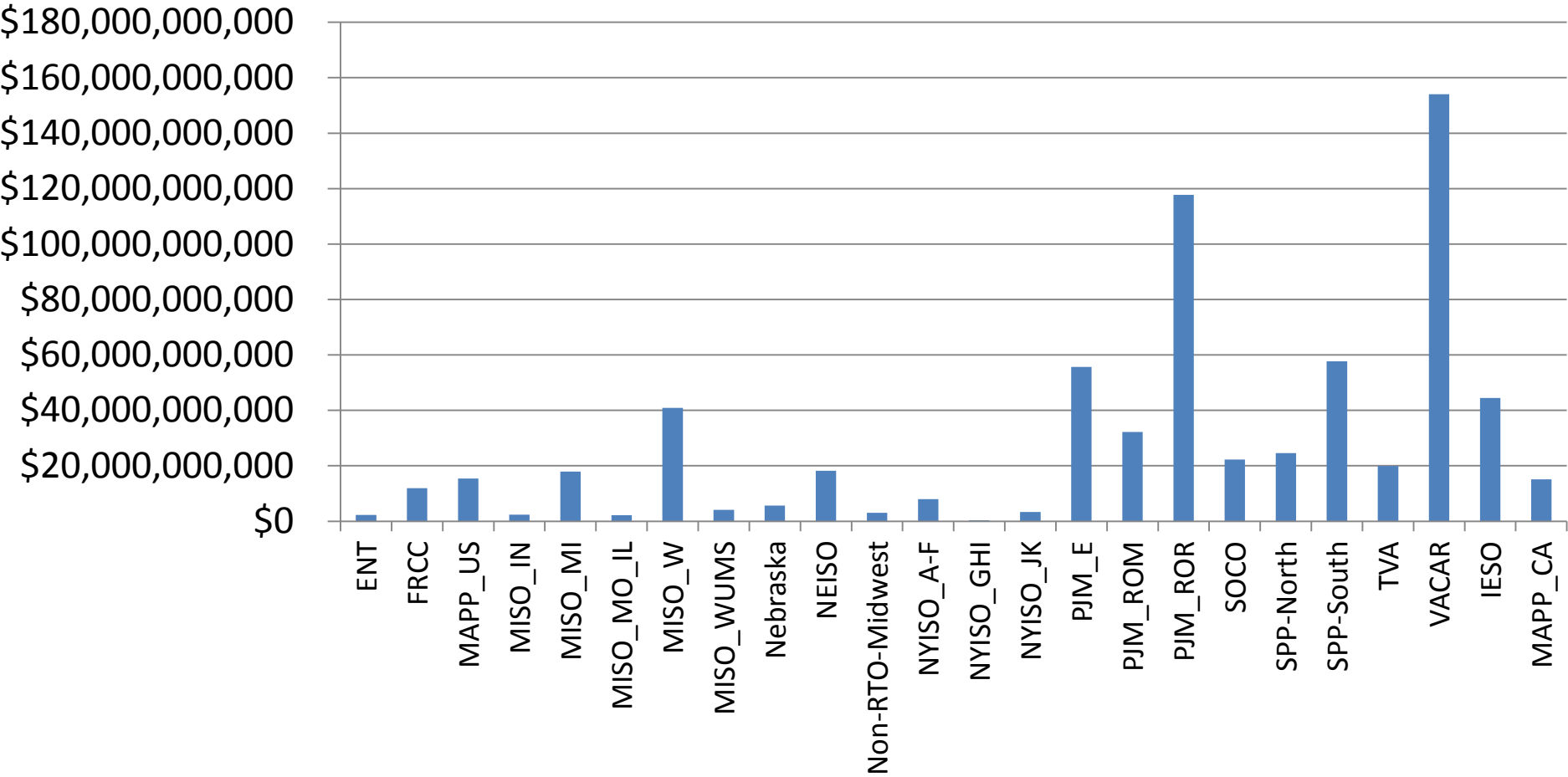


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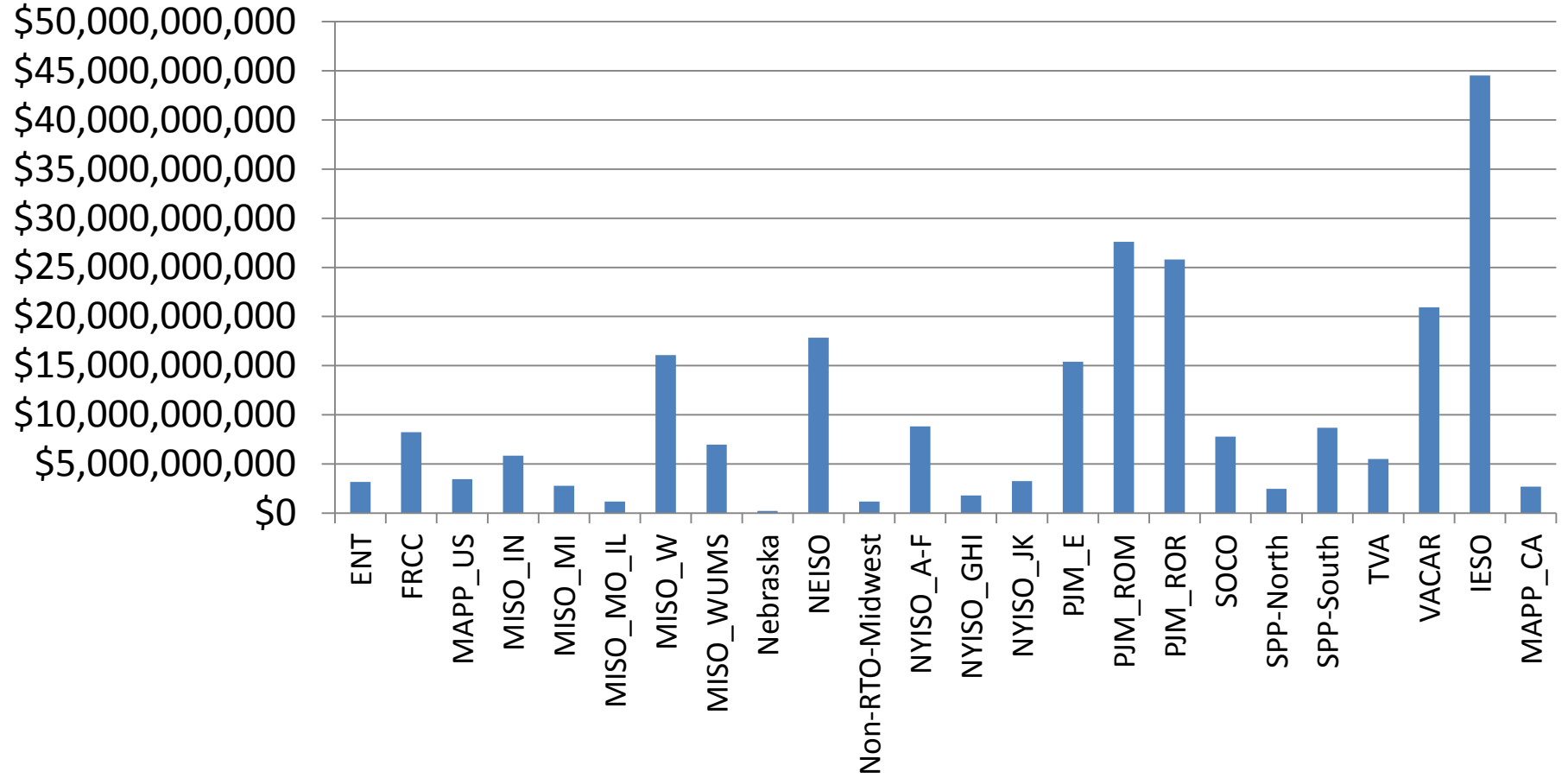
Preliminary Results by Region

Generation Costs Associated with Scenario 2



Preliminary Results by Region

Generation Costs Associated with Scenario 3





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Questions

