

**Montana-Dakota Utilities Co.**  
**Summary of Additional EGEAS Cases**

**2011 IRP Base**

- The Base Case results from the 2011 Integrated Resource Plan

**Additional Case 1 – La Capra Modified Base**

Used the “Base Case” with the following additions:

- Included two additional responses from the 2010 MDU RFP to be considered as resource alternatives:
  - 150 MW North Dakota wind proposal
  - 176 MW Illinois combustion turbine proposal
- Lowered the forced outage rate for the 43 MW Combustion Turbine from 22.31% to 6.45%
- Lowered the capital cost for the self-built wind options from \$2,400/kW to \$1,750/kW
- Assumed the federal production credit was extended through 2020 as compared to 2012
- Set the fixed O&M for the purchased wind energy option to \$0 from \$12/kW-yr
- Lowered the variable O&M for the self-built combined cycle option to \$3.00/MWh from \$6.00/MWh

**Additional Case 2 – La Capra Modified Base without ND Wind and IL Proposal**

Used the same assumptions as the “Additional Case 1” except:

- Removed the 150 MW North Dakota proposal
- Removed the 176 MW Illinois combustion turbine proposal

**Additional Case 3 – La Capra Modified Base with IL Proposal and no PTC extension or ND Wind**

Used the “Base Case” with the following additions:

- Included the 176 MW Illinois combustion turbine as a resource alternative
- Lowered the forced outage rate for the 43 MW Combustion Turbine from 22.31% to 6.45%
- Set the fixed O&M for the wind energy option to \$0 from \$12/kW-yr
- Lowered the variable O&M for the self-built combined cycle option to \$3.00/MWh from \$6.00/MWh

**Additional Case 4 – La Capra Modified Base without IL Proposal and no PTC extension or ND Wind**

Used the “Base Case” with the following additions:

- Lowered the forced outage rate for the 43 MW Combustion Turbine from 22.31% to 6.45%
- Set the fixed O&M for the wind energy option to \$0 from \$12/kW-yr
- Lowered the variable O&M for the self-built of the combined cycle to \$3.00/MWh from \$6.00/MWh

**Montana-Dakota Utilities Co.  
 EGEAS Additional Case Results**

	Additional Case 1	Additional Case 2	Additional Case 3	Additional Case 4
Year	2011 IRP Base	La Capra Modified Base	LaCapra Modified Base without ND Wind and IL CTs	La Capra Modified Base without IL CTs and no PTC extension or ND Wind
2011			4-Wind Built <sup>2</sup>	
2012				
2013	1-Purchase	1-Purchase		1-Purchase
2014	2-Purchase	2-Purchase		2-Purchase
2015	2-CT43, 2-DSM, CT88, BGS AQCS	2-DSM, BGS AQCS, IL-CT, ND Wind	CT43, 2-DSM, CT88, BGS AQCS	2-CT43, 2-DSM, CT88, BGS AQCS
2016				
2017			CT43	
2018	CT43			CT43
2019				
2020	4-Wind			5-Wind
2021		CT43	CT43	CT43
2022	CT43			CT43
2023				
2024		CT43	CT43	CT43
2025	CT43			CT43
2026				
2027				
2028	CT43	CT43	CT43	CT43
2029				
2030				
NPV <sup>1</sup>	\$3,723.72	\$3,329.80	\$3,630.46	\$3,460.78

1 - NPV in millions of dollars

2 - PTC are modeled in EGEAS as negative variable O&M until 2030 in the model

- \*CT43 - 33.4 PRC (43 MW) Combustion Turbine
- \*CT88 - 82.3 PRC (88 MW) Combustion Turbine
- \*CC - 132.5 PRC (140 MW) Combined Cycle
- \*Base Load - 27.7 PRC (30 MW) Coal-fired Generation
- \*DSM - 12.5 PRC (12.5 MW) Demand Side Management
- \*BGS AQCS - Big Stone Air Quality Control System
- \*Wind - 25 MW Wind (Purchased Energy)
- \*Purchase - 10 PRC (10 MW) Capacity Purchases
- \*Wind built - 30 MW Wind (Self-built)
- \*IL-CT - 176 MW Illinois Combustion Turbines
- \*ND Wind - 150 MW wind energy