

Montana-Dakota Utilities Co.

ND PSC Case No. PU-11-395
and PU-11-396

Darcy Neigum

January 10, 2012

MDU-106

Capacity and Energy Needs

Latest System Forecast (2011-2031)

- 5 year average sales growth rate of 3.7%
- 5 year average demand growth rate of 2.5%

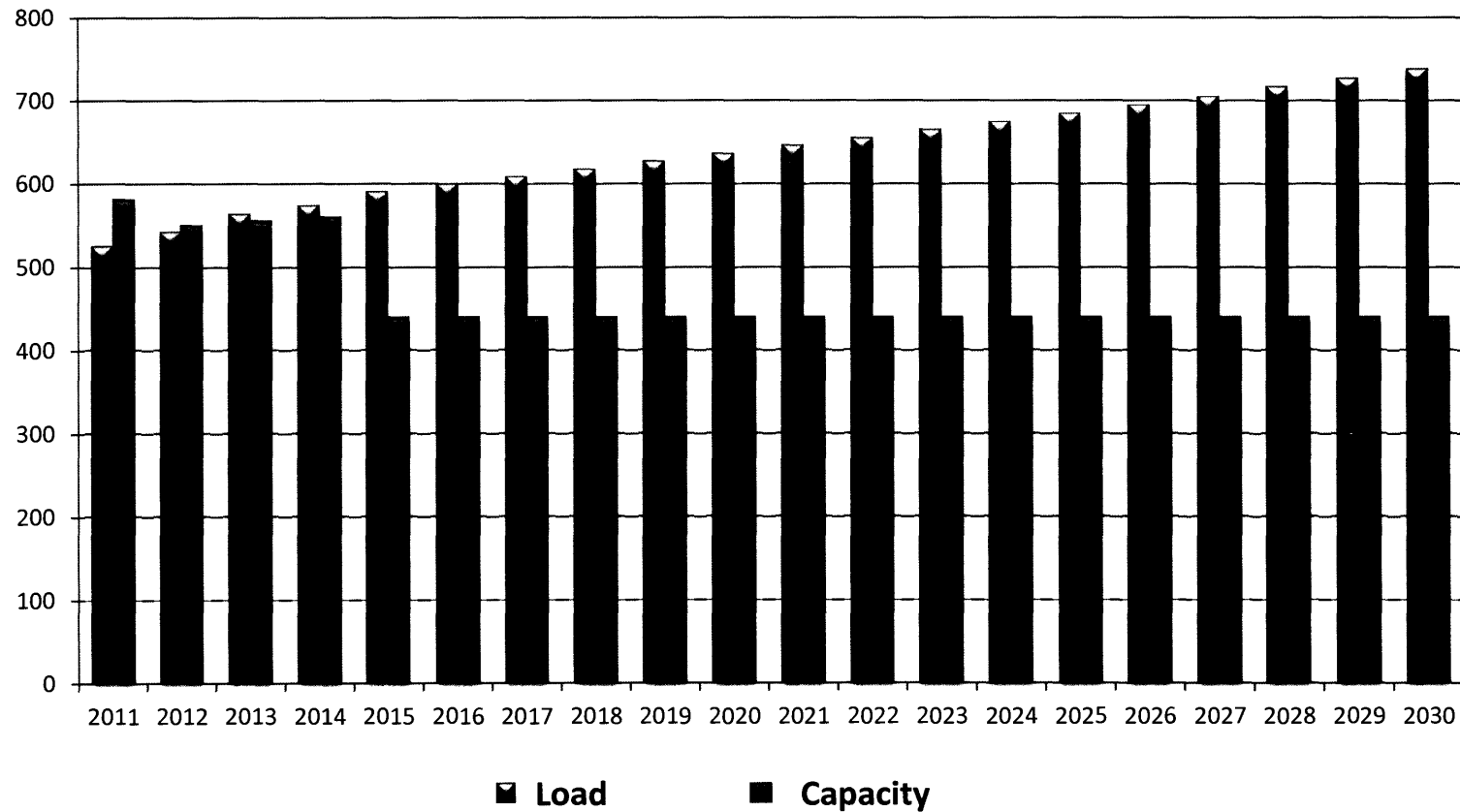
Potential increased customer growth associated with Bakken Oil Formation

All-time summer peak of 535 MW set 7/29/11

Capacity Need

- In 2015, Montana-Dakota will be deficient 149 MW (MISO PRCs) or 25% of all capacity requirements
- Expiration of We Energies capacity purchase agreement in May of 2015
- 66 MW Antelope Valley power purchase agreement expired in November of 2006
- Last major capacity resource addition was Glendive Unit II which was completed in 2003

Capacity Need



2010 Request for Proposal

- Issued June 1, 2010
- Bid Responses Due August 20, 2010
- Shortlist Notifications October 1, 2010
- Selection Process
Complete November 15, 2010
- Bids valid through December 31, 2010

2010 Request for Proposal

- Solicited all resources beginning in June of 2015
- Eight respondents
 - 3 wind resources
 - 1 wind and/or nuclear resource
 - 2 combustion turbine resources (SSCT and CCCT)
 - 1 wholesale tariff rate
 - 1 demand response program
- Least cost screening analysis
 - Demand response program, North Dakota wind proposal, and Illinois combustion turbine proposal

2010 Request for Proposal

- Environmental and political uncertainties with existing capacity reserves limited responses from neighboring utilities
- Alternatives considered
 - 43 MW and 88 MW combustion turbines
 - 140 MW combined cycle resource
 - Wind generation (with and without PTCs)
 - Coal-fired generation (IGCC technology)
 - Demand response and energy efficiency programs
 - Big Stone Air Quality Control System Equipment

2011 Integrated Resources Plan

Two Year Action Plan

- Pursue Big Stone Air Quality Project
- 25 MW Commercial and Industrial Demand Response Program
- 88 MW combustion turbine at Heskett Station
- Short-term capacity deficits secured through MISO capacity auction or bilateral market
- Issue new Request for Proposal in 2012

La Capra Modeling Comments

- AFUDC Treatment
- Incremental cost for combined cycle
- Number of available combined cycle resources
- Cost of self-built wind
- Expiration of Federal PTCs
- Fixed O&M for purchased wind energy
- Equivalent Forced Outage Rate (EFOR) for 43 MW CT
- Energy cost for Calpine resource
- High number of 43 MW combustion turbines selected
- Additional modeling runs
 - High coal retirement, PTC extension

EGEAS Modeling

- La Capra comments do not change selection of 88 MW combustion turbine in 2015
- Montana-Dakota's economic analysis model (EGEAS) responds to available resources consistent with others models
 - Capacity (simple cycle or combined cycle turbines)
 - Energy (combustion turbines and/or wind with PTCs)
- 2009 and 2011 IRPs both selected combustion turbine resources in 2015

		Additional Case 1	Additional Case 2
Year	2011 IRP Base	La Capra Modified Base	La Capra Modified Base without ND Wind and IL CTs
2011			4-Wind Built
2015	2-CT43, CT88, 2-DSM, BGS AQCS	IL-CT, ND Wind 2-DSM, BGS AQCS	CT43, CT88, 2-DSM, BGS AQCS
2016			
2017			CT43
2018	CT43		
2019			
2020	4-Wind		
2021		CT43	CT43
2022	CT43		
2023			
2024		CT43	CT43
2025	CT43		
2026			
2027			
2028	CT43	CT43	CT43
2029			
2030			
NPV	\$3,723	\$3,329	\$3,630

ND Wind Proposal

- ND Wind Proposal is an energy only resource
- 150 MW wind project located near Hettinger, ND
- MISO study (October 2010) showed significant system network upgrades required
- Montana-Dakota has limited transmission rights in Hettinger area and concerned with monetary impacts associated with flows on WAPA Integrated System (IS)
- Montana-Dakota modeled an existing wind proposal as market price for purchased wind energy

Illinois Proposal

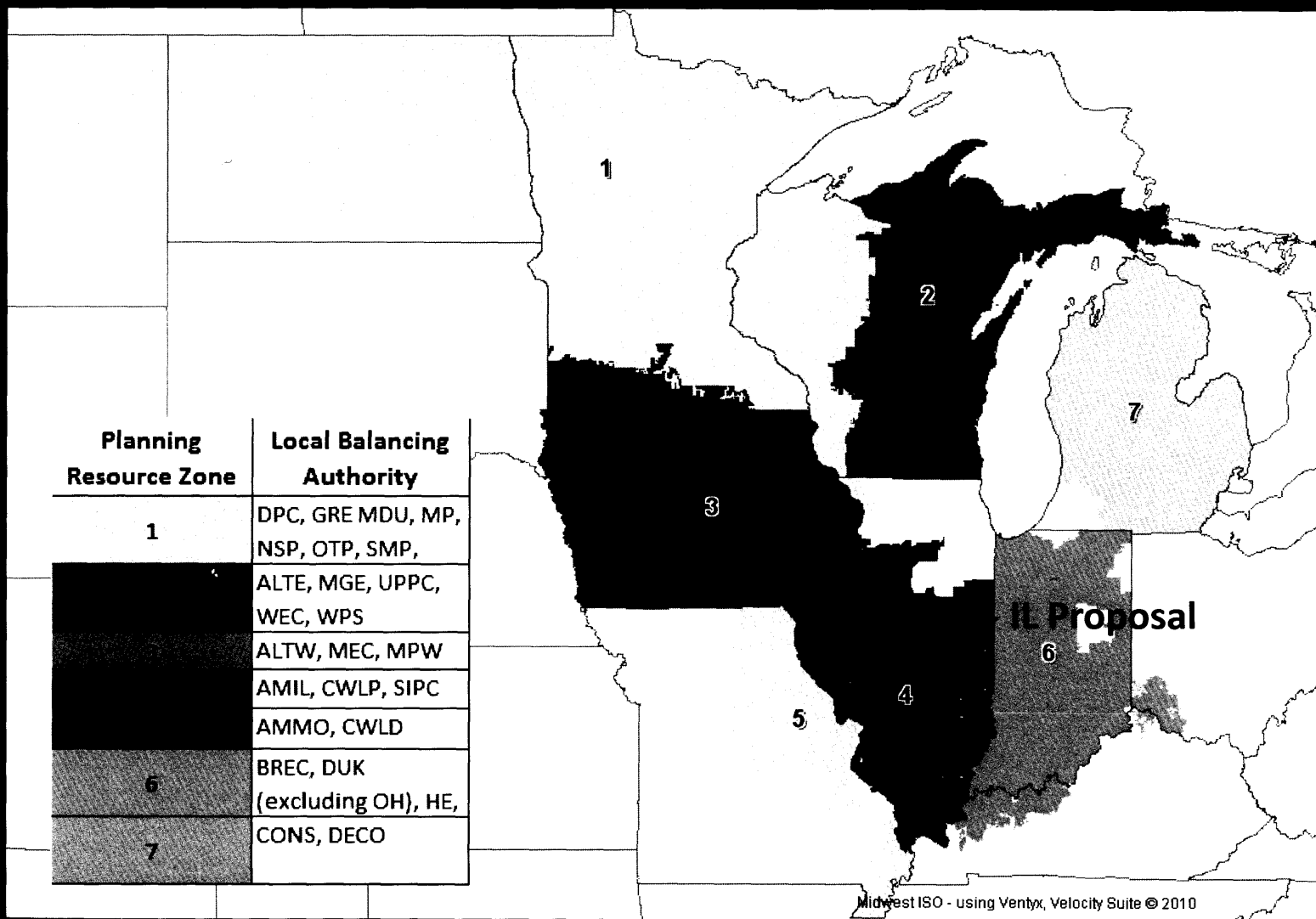
- 176 MW simple cycle combustion turbine project
- Located along Illinois and Indiana border
- Offered 88 or 176 MW
- 20 year power purchase agreement
- Not considered a long-term resource
 - Ability to utilize capacity under MISO's new resource adequacy construct
 - No local reliability benefits
 - Energy resource located three states away
 - Impacts with changes in MISO membership
 - Impacts with further changes to resource adequacy rules
 - True cost of the proposal

MISO's Resource Adequacy Concepts

- Filed with FERC on July 7, 2011
- Begins with 2013-2014 planning year
- Mandatory one-year auction process
- Local Resource Zones (LRZs)
- Separate Auction Clearing Price for each LRZ

MISO Resource Adequacy

Proposed Local Resource Zones (LRZs)

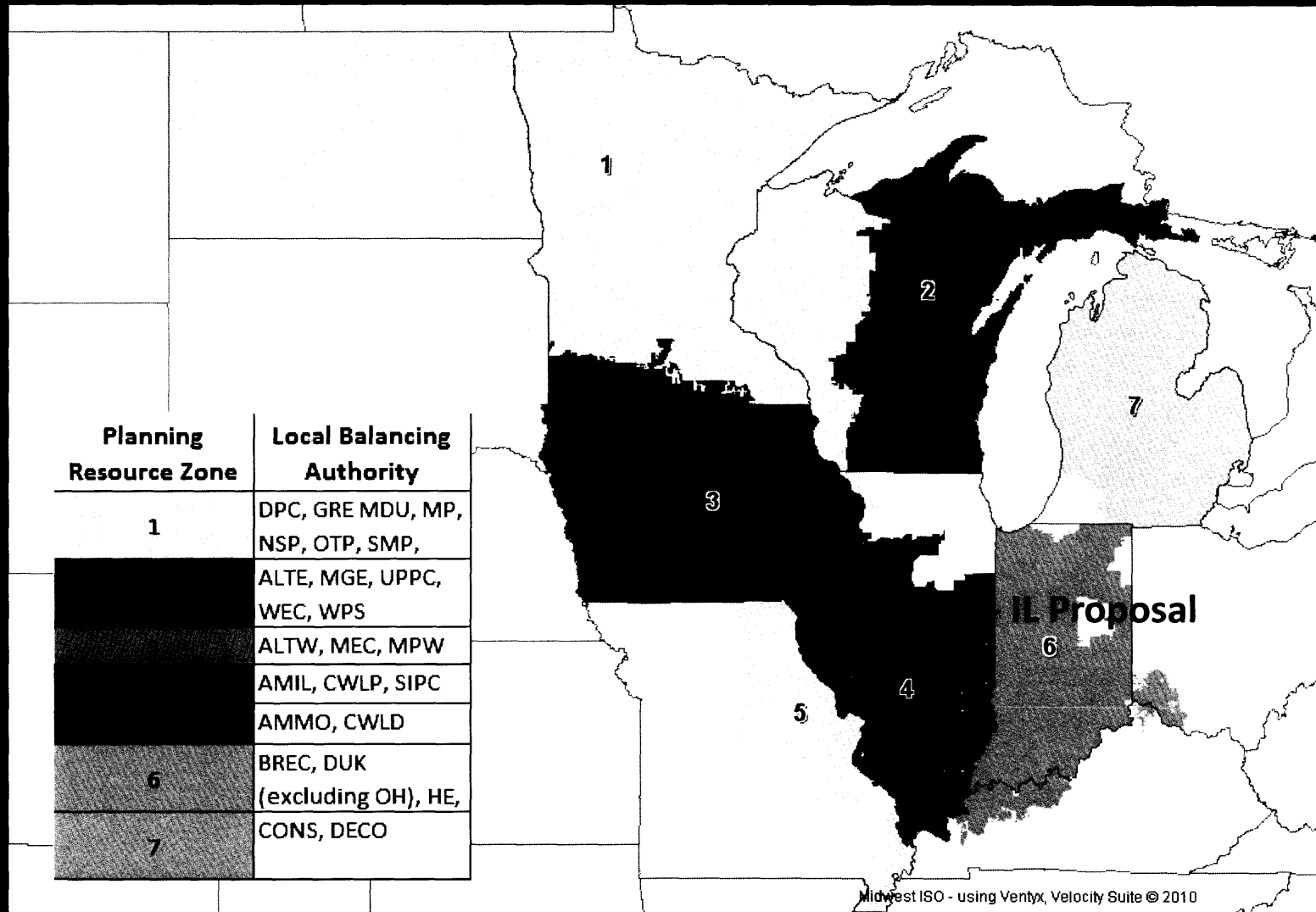


MISO's Resource Adequacy Concepts

- Filed with FERC on July 7, 2011
- Begins with 2013-2014 planning year
- Mandatory one-year auction process
- Local Resource Zones (LRZs)
- Separate Auction Clearing Price for each LRZ
- Ability to file Fixed Resource Adequacy Plan
 - Opt-out provision
 - Self-scheduling provision
 - Grandmothered agreements
 - Provisions would not apply to IL Proposal

MISO Resource Adequacy

Proposed Local Resource Zones (LRZs)



MISO Excess Capacity

		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
No retirements	Reserve Margin (MW)	23,930	22,438	22,064	21,368	20,760	20,065	19,287	19,950	19,031	18,032
	Reserve Margin (percent)	27.0%	24.8%	24.2%	23.3%	22.5%	21.5%	20.5%	21.0%	19.9%	18.6%
2.9 GW Retirements (impacts adjusted for expected derates)	Reserve Margin (MW)	21,603	20,111	19,737	19,041	18,433	17,738	16,960	17,623	16,704	15,705
	Reserve Margin (percent)	24.3%	22.2%	21.7%	20.8%	19.9%	19.0%	18.1%	18.6%	17.5%	16.2%
12.6 GW Retirements (impacts adjusted for expected derates)	Reserve Margin (MW)	12,544	11,052	10,678	9,982	9,374	8,679	7,901	8,564	7,645	6,646
	Reserve Margin (percent)	14.1%	12.2%	11.7%	10.9%	10.1%	9.3%	8.4%	9.0%	8.0%	6.6%

Table 2.1-1 Potential system reserve margin impacts of retirements compared to the MISO 2011 Long Term Resource Assessment

Source – MISO website, “EPA Impact Analysis, Impacts from the EPA Regulations on MISO.” October 2011.

MISO Load and Generation by LRZ

Local Resource Zone	Local Balancing Authority	Load (MW)	Generation (MW)
1	DPC, GRE MDU, MP, NSP, OTP, SMP,	17,131	16,507
2	ALTE, MGE, UPPC, WEC, WPS	12,830	15,104
3	ALTW, MEC, MPW	8,723	8,985
4	AMIL, CWLP, SIPC	10,301	11,897
5	AMMO, CWLD	8,850	10,055
6	BREC ¹ , DUK, HE, IPL, NIPSCO, SIGE	22,741	25,276
7	CONS, DECO	21,223	24,168
Source: Load - July 2010 Forecasted Peak Demand and Generation – 2010 Summer Generation			

1 – Big Rivers load and generation are not included in the values shown.

Source – MISO website from the Supply Adequacy Working Group, “Applications of Transfer Limits in New Resource Adequacy Construct.” Page 22. June 9, 2011.

Cost Adders and Customer Impacts with Illinois Proposal

- No local reliability benefits
- Additional costs for a MISO transmission service request from Illinois to North Dakota
- Increased WAPA IS transmission charges
- Differences in energy pricing nodes between Illinois and North Dakota
- Lack of benefits associated with on-system resource

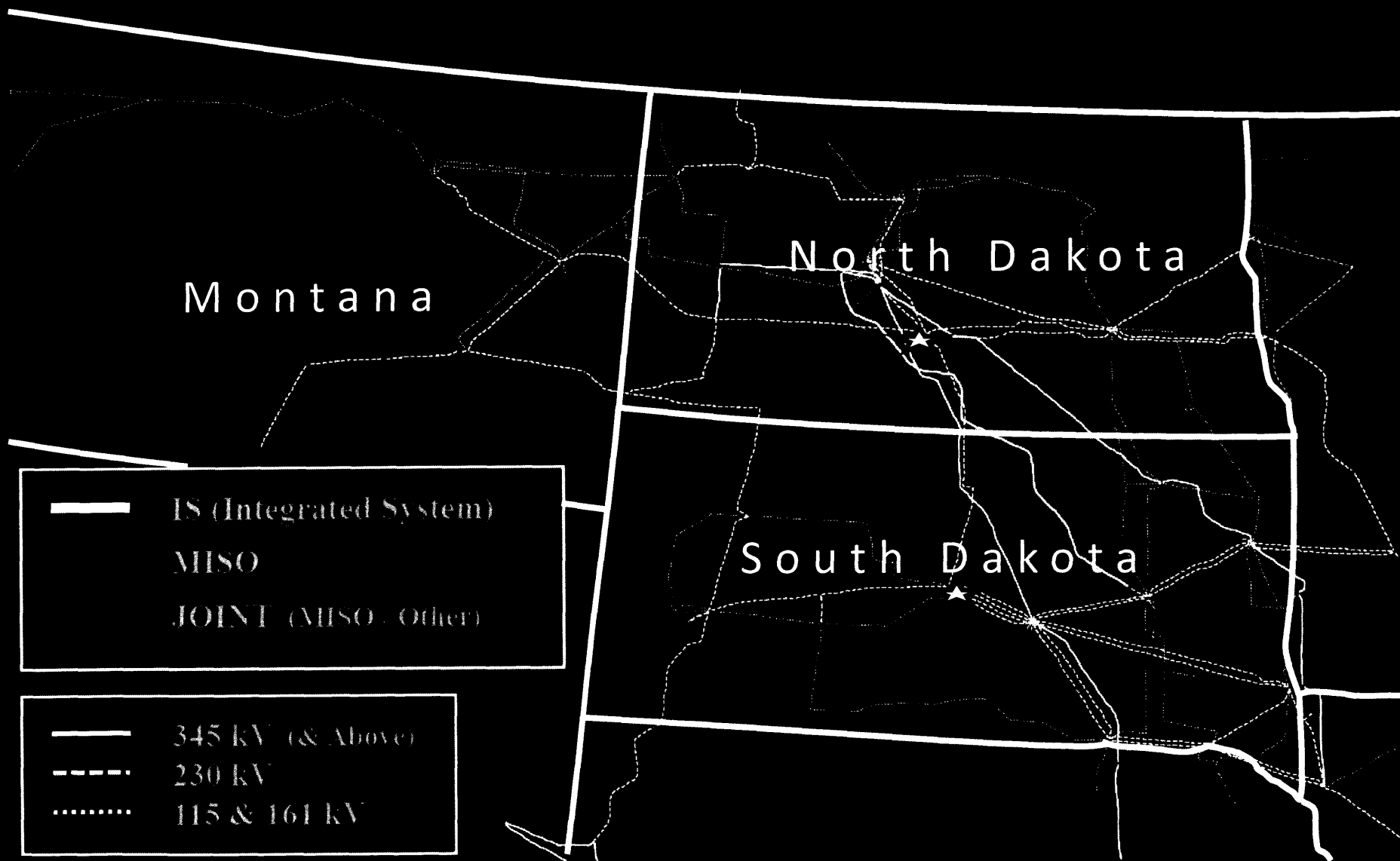
Benefits of Heskett 88 MW Combustion Turbine

- Improved system reliability
 - Load serving capability, voltage support, mitigate transmission outages
- Synergies and opportunities with Heskett Station
- Long-term benefits of owned resources
- Avoidance of WAPA IS Transmission charges
- Reduces Montana-Dakota's need for capacity purchases in 2015 (coupled with new demand response program) to 6% from 25%
- Cost effective resource

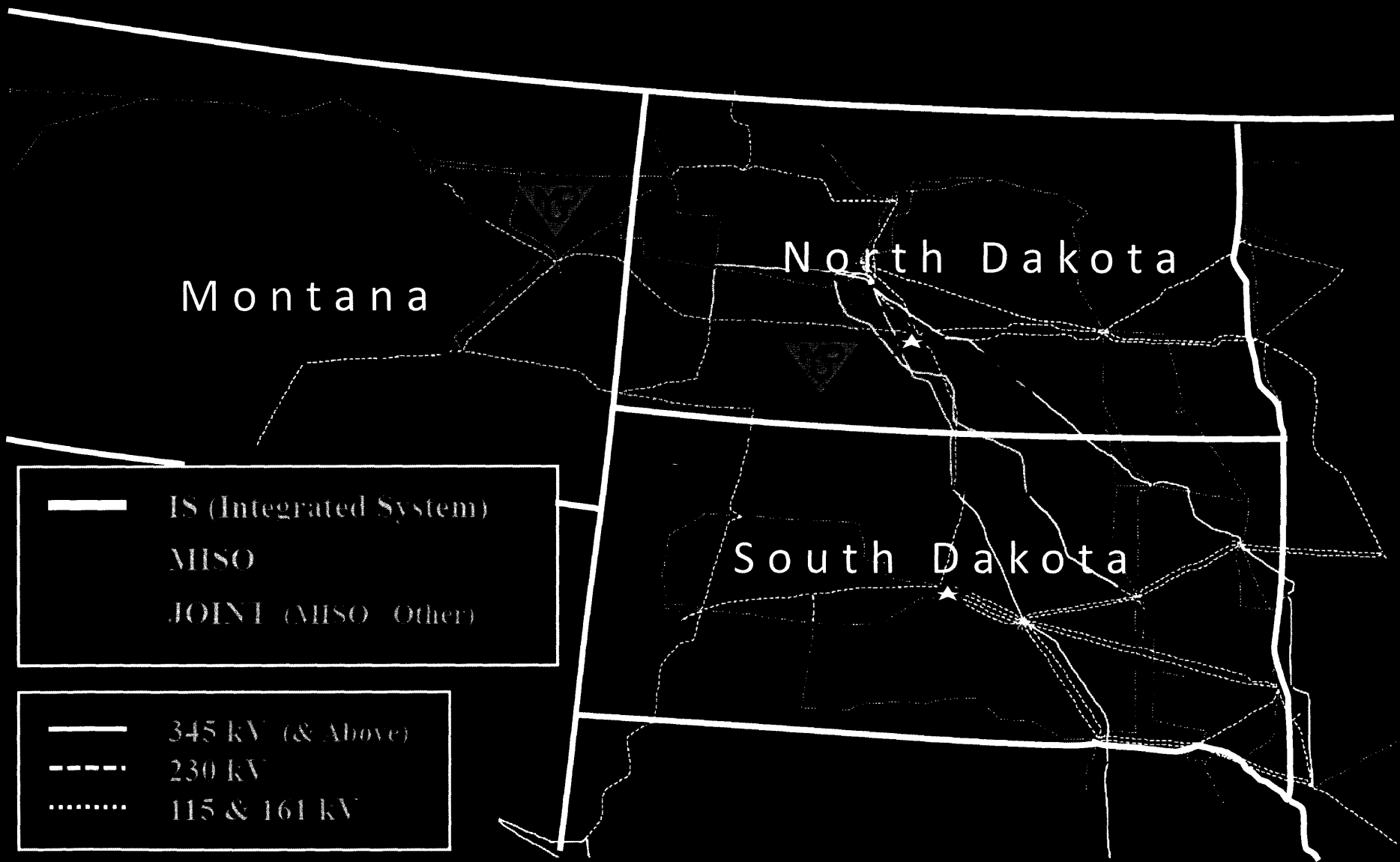
WAPA Transmission Service

- Existing WAPA Transmission Service Agreement expires December 31, 2015
- Provided sharing of transmission facilities between WAPA and Montana-Dakota
- Post-2015, Montana-Dakota will be required to take network transmission service from the WAPA IS for loads that the Company cannot serve from its own or MISO facilities
- Generating resource at Heskett Station could be used to offset the need for WAPA transmission service

Regional Transmission



Regional Transmission



Regional Transmission

Montana

North Dakota



South Dakota



MISO

JOINT (MISO - Other)

— 345 kV (& Above)

- - - 230 kV

..... 115 & 161 kV

Regional Transmission

Montana

North Dakota

South Dakota

MISO

JOINT (MISO - Other)

— 345 kV (& Above)

- - - 230 kV

..... 115 & 161 kV

Montana-Dakota has:

- 3 Connections with Otter Tail (MISO)
- 35 Connections with WAPA IS

Year	2011 IRP Base	Additional Case 1 La Capra Modified Base	Additional Case 2 La Capra Modified Base without ND Wind and IL CTs	Additional Case 3 La Capra Modified Base with IL CTs and no PTC extension or ND Wind	Additional Case 4 La Capra Modified Base without IL CTs and no PTC extension or ND Wind	Additional Case 5 Base w/ LaCapra Changes w/o ND Wind and 15 year term for IL CTs
2011			4-Wind Built			
2015	2-CT43, CT88, 2-DSM, BGS AQCS	IL-CT, ND Wind 2-DSM, BGS AQCS	CT43, CT88, 2-DSM, BGS AQCS	IL-CT, 2-DSM, BGS AQCS	2-CT43, CT88, 2-DSM, BGS AQCS	IL-CT, 1-Wind, 2-DSM, BGS AQCS
2016						
2017			CT43			
2018	CT43				CT43	
2019						
2020	4-Wind			4-Wind	5-Wind	5-Wind
2021		CT43	CT43	CT43		CT43
2022	CT43				CT43	
2023						
2024		CT43	CT43	CT43		CT43
2025	CT43				CT43	
2026						
2027						
2028	CT43	CT43	CT43	CT43	CT43	CT43
2029						
2030						3-CT43, 1-CT88
NPV	\$3,723	\$3,329	\$3,630	\$3,460	\$3,707	\$3,650