2020 Economic Planning Study Results

PRESENTED BY

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AMERICAN TRANSMISSION COMPANY®

Introduction

- Process Overview and Timeline
- MTEP20 Futures
- Study Area Results
- Next Steps

ATC Process Overview and Timeline

- ATC Economic Project Planning – Per ATC Tariff
  - **During February,** we hold an initial stakeholder meeting to review the market congestion summary and potential fixes and to discuss economic study scenarios, drivers, ranges, and assumptions.
  - **By March 1**, we work with stakeholders to request and prioritize new/other economic studies and recommend study assumptions.
  - **By April 15** – we identify preliminary areas of economic study, study assumptions and models and solicit further comments from stakeholders.
  - **By May 15** – we finalize areas of economic study, study assumptions and models to be used in analysis.
  - **By November 15** – we provide a summary of the results of the economic analyses to our stakeholders.

MISO MTEP20 Futures

- Accelerated Fleet Change (AFC)
- Continued Fleet Change (CFC)
- Distributed and Emerging Technologies (DET)
- Limited Fleet Change (LFC)

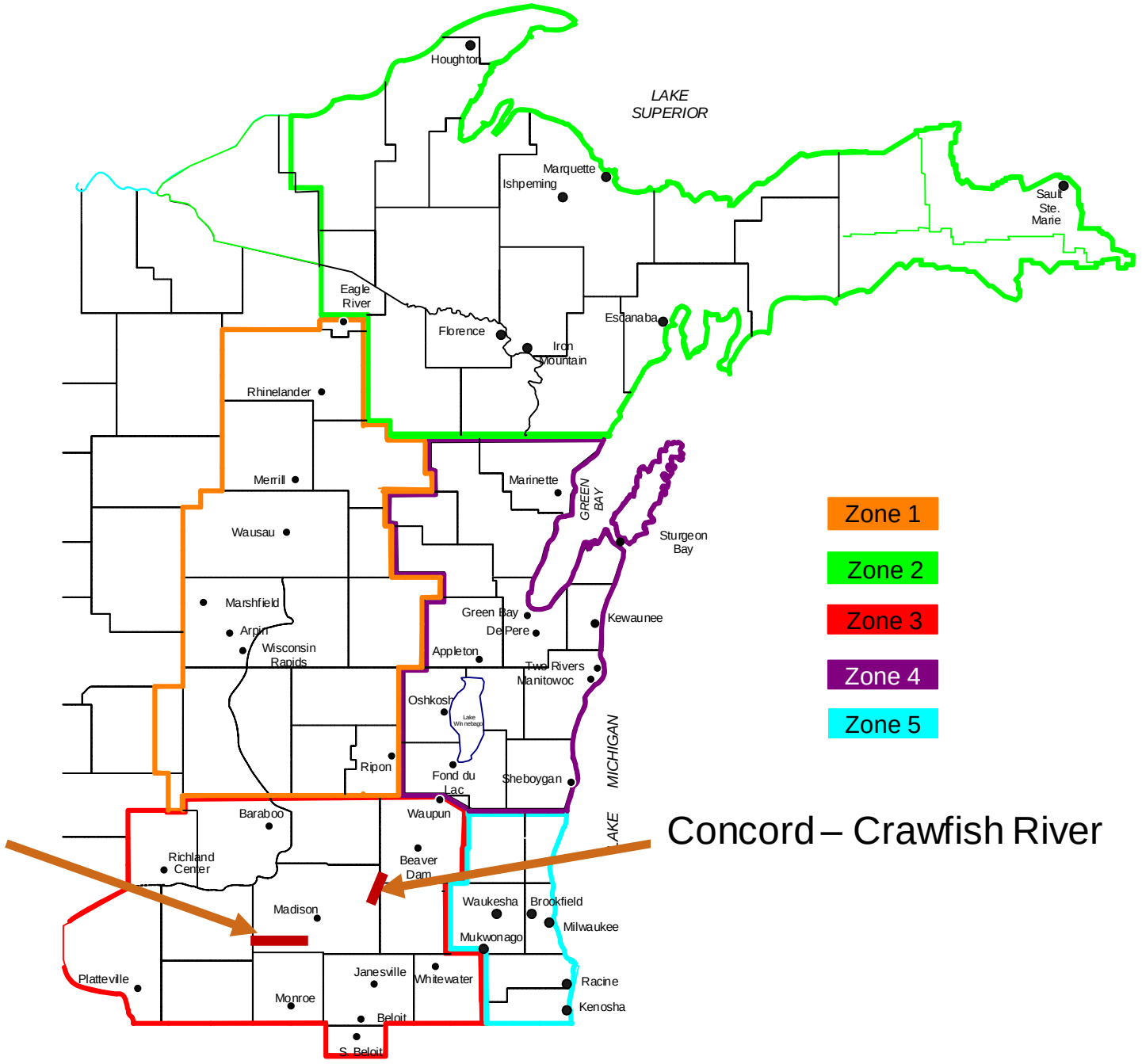
For More Information:

http://www.atc10yearplan.com/wp-content/uploads/2020/03/ATC-2020-Economic-Planning-Study-Kickoff-1.pdf

MTEP20 Study Areas

- Darlington – North Monroe 138 kV
- Concord – Crawfish River 138 kV

- Note: Withdrawn generation interconnection projects impacted congestion on these lines, so adjacent lines were also considered for this study.


Houghton
LAKE SUPERIOR
Marquette
Ishpeming
Sault Ste. Marie
Eagle River
Florence
Escanaba
Iron Mountain
Rhinelander
Merrill
Marinette
GREEN BAY
Wausau
Sturgeon Bay
Marshfield
Green Bay
Kewaunee
Arpin
De Pere
Wisconsin Rapids
Appleton
Two Rivers
Manitowoc
Oshkosh
Lake Winnebago
Ripon
Fond du Lac
Sheboygan
MICHIGAN
LAKE
Baraboo
Waupun
Richland Center
Beaver Dam
Madison
Waukesha
Brookfield
Milwaukee
Mukwonago
Platteville
Janesville
Whitewater
Racine
Monroe
Kenosha
Beloit
S. Beloit
Zone 1
Zone 2
Zone 3
Zone 4
Zone 5
Darlington – North Monroe
Concord – Crawfish River

Concord Alternatives

- Uprate Concord - Crawfish River 138kV
  - Uprate to maximum conductor temperature rating
- Rebuild Concord - Crawfish River 138kV
  - Rebuild to Normal 404 MVA and Emergency 555 MVA
- NTA (non-transmission alternative) at Concord
  - 5 MW Solar
  - 5 MW, 25 MWH Battery
- NTA at Concord
  - 5 MW Solar
  - 5 MW, 25 MWH Battery

Concord MTEP20 Study Results

		MISO MTEP19 Planning Futures			
		AFC	CFC	DET	LFC
Alternatives	Uprate Concord - Crawfish River 138kV	$127,522	$1,652	($497,114)	$17,900
	Rebuild Concord - Crawfish River 138kV	$116,255	($6,128,800)	$4,186,820	($451,188)
	NTA at Concord	$8,309,282	$12,486,332	$8,565,001	$3,197,115
	NTA at Crawfish River	$13,466,726	$11,527,758	$9,919,122	$7,370,368

Note: Numbers are 2020 present value gross benefit from the Customer Benefit metric.

Concord Alternative Conclusions

- Uprate Concord - Crawfish River 138kV
  - Eliminated due to negative/low positive benefits
- Rebuild Concord - Crawfish River 138kV
  - Eliminated due to negative benefits in 2 futures
- NTA at Concord and at Crawfish River
  - Eliminated due to insufficient benefit/cost ratio
  - Cost estimated of battery only: $12M
  - Benefit is due to production cost reduction and not congestion cost reduction

North Monroe Alternatives

- Uprate North Monroe – Bass Creek 138kV
  - Uprate emergency to maximum
  - Normal rating is already at maximum
- Rebuild North Monroe – Bass Creek 138kV
  - Rebuild to normal 280 MVA and emergency 380MVA
  - T2 Hawk ratings
- NTA
  - 5MW Solar, 5MW and 20MWH Battery, 5MW Load Reduction
  - Located in Bass Creek area
- Phaseshifter at Darlington 138kV
  - Limited to -5º to 5º

North Monroe Alternative Results

		MISO MTEP20 Planning Futures			
		AFC	CFC	DET	LFC
Alternatives	Uprate North Monroe - Bass Creek 138kV	$968,823	$1,069,499	$1,089,373	$501,160
	Rebuild North Monroe - Bass Creek 138kV	($253,872)	$1,798,748	$1,269,623	$195,311
	NTA	$13,406,080	$14,830,385	$13,196,507	$7,770,262
	Phaseshifter	($5,958,505)	$3,152,759	($2,222,936)	$288,239

Note: Numbers are 2020 present value gross benefit from the Customer Benefit metric.

North Monroe Alternatives

- Uprate North Monroe – Bass Creek 138kV
  - Eliminated due to insufficient benefit/cost ratio
  - Cost estimated: $3M
- Rebuild North Monroe – Bass Creek 138kV
  - Eliminated due to negative benefits in 1 future
- NTA
  - Eliminated due to insufficient benefit/cost ratio
  - Cost estimated of battery only: $12M
- Phaseshifter at Darlington 138kV
  - Eliminated due to negative benefits in 2 futures

Next Steps

- Continued work monitoring new generation impacts on congestion and their projects
- Continued Analysis for NTA Solutions and Battery Modeling
- Timelines
  - February 2021 – Next Stakeholder Meeting

Questions

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