

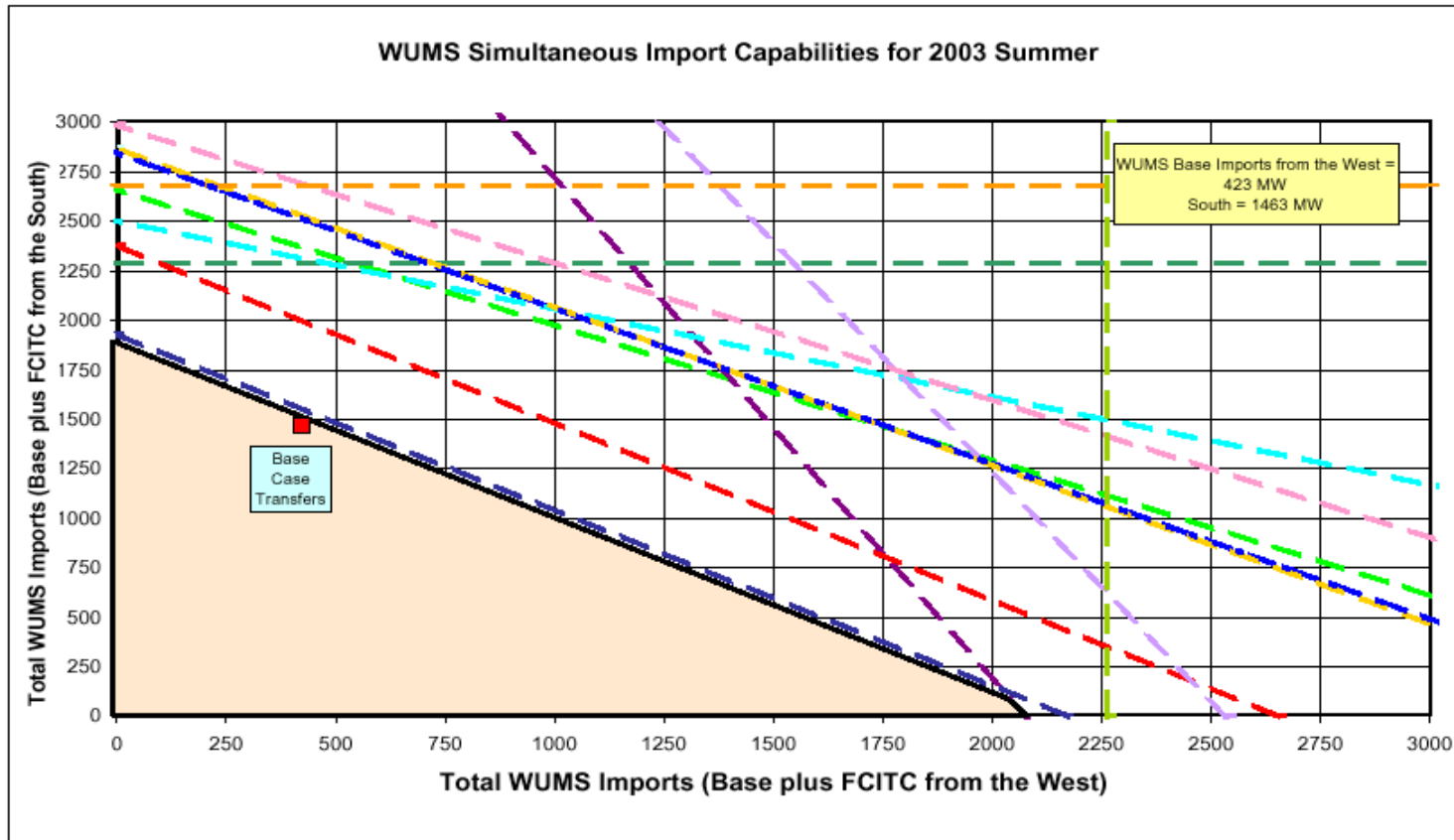


## 2003 Summer ATC Import Capability & Reliability

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- The NERC 2003 Summer Assessment calls “Imports into Wisconsin” marginally adequate.
  - What is the emergency import capability?
  - What is “the” constraint?
  - Why was it originally called inadequate?
  - Why is it now marginally adequate?
  - What is the short-term solution?
  - What is the emergency import capability?
  - How does this compare to 2002?

# What was the (original) import capability?



- |                                                                          |                                                      |                                                                     |                                                                         |
|--------------------------------------------------------------------------|------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------|
| <span style="color: red;">■</span> Lore-Turkey River-Cassville 161 kV    | for outage of Wempletown-Paddock 345 kV              | <span style="color: yellow;">■</span> Blackhawk-ColleyRd 138 kV     | for outage of Paddock-Rockdale 345 kV                                   |
| <span style="color: purple;">■</span> Eau Claire-Arpin 345 kV Flow Limit | for outage of N/A                                    | <span style="color: pink;">■</span> Golf Mills-Niles 138 kV Blue    | for outage of Golf Mills-Skokie 345 kV Blue                             |
| <span style="color: cyan;">■</span> Center-Fiebrantz 138 kV              | for outage of Arcadian-Granville 345 kV              | <span style="color: green;">■</span> Seneca-Bell Center 161 kV      | for outage of Seneca-Gran Grae-Nelson Dewey 161 kV                      |
| <span style="color: magenta;">■</span> Pleasant Prairie-Racine 345 kV    | for outage of Wempletown-Paddock 345 kV & 69 kV open | <span style="color: orange;">■</span> Salem 345/161 kV Tr           | for outage of Wempletown-Paddock 345 kV & 69 kV open                    |
| <span style="color: blue;">■</span> Paddock 345/138 kV Tr.               | for outage of Paddock-Rockdale 345 kV                | <span style="color: lightblue;">■</span> T Corners-Wien 115 kV      | for outage of Eau Claire-Arpin 345 kV & Arpin Area Op Guide Implemented |
| <span style="color: darkgreen;">■</span> Paris-St Martins 138 kV         | for outage of Pleasant Prairie-Racine 345 kV         | <span style="color: darkblue;">■</span> Lore-Turkey River-Cassville | for outage of Wempletown-Paddock 345 kV & 69 kV open                    |



## What is the base import level and the (original) capability?

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- 100 MW + 1532 MW from the South
  - 100 MW incremental
  - 1532 MW base case transactions
- 100 MW + 354 MW from the West
  - 100 MW incremental
  - 354 MW base case transactions
- Total base imports: 1886 MW

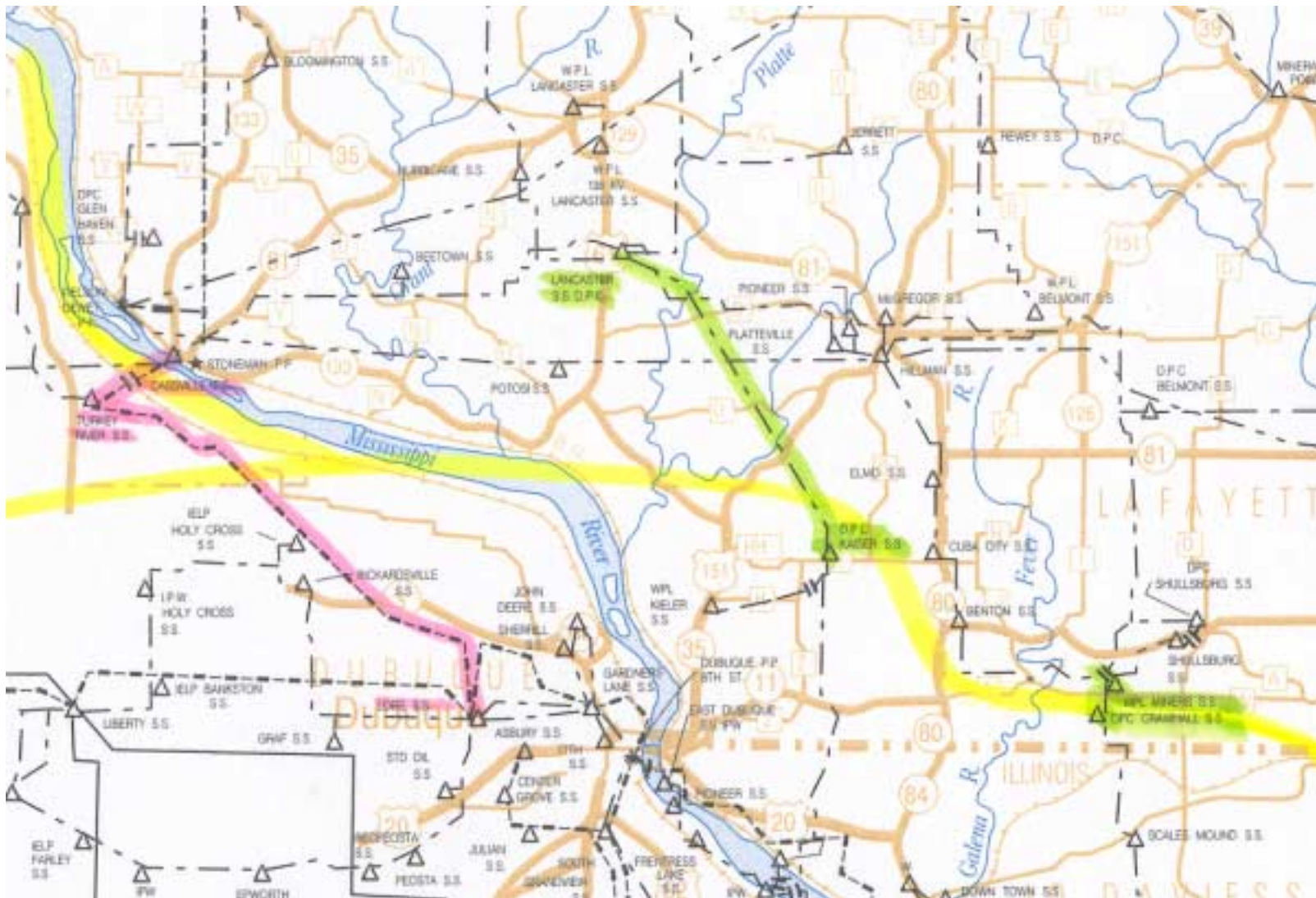


## What is “the” constraint?

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- Turkey River-Cassville 161 kV  
For the Loss Of (FLO) Wempletown-Paddock 345 kV and  
(Kaiser-Lancaster 69 kV) open under operating procedure and  
(Crawhall-Miners 69 kV) open under operating procedure
- The Lore-Turkey River-Cassville 161 kV line (ALTW-DPC) is sensitive to WUMS imports for an outage of the Wempletown-Paddock 345 kV line(ComEd-ATCLLC) and the ATCLLC / DPC operating procedure of opening the Lancaster 69 kV breaker towards Kaiser (DPC) and Miners 69 kV breaker towards Crawhall (ATCLLC) for high flows in Wisconsin. The 22.7 mile Lore-Turkey River-Cassville 161 kV line (ALTW-DPC) is the limiting element for all 10 Wisconsin import directions studied.
- The ATCLLC / DPC operating procedure is new for this 2003 summer study and had this operating procedure existed for the 2002 summer study the Lore-Turkey River-Cassville 161 kV line would have been the most limiting element for the majority of the Wisconsin import directions. Increases in Wisconsin imports from the south and decreases in Wisconsin imports from the west have helped to exacerbate the situation. The American Transmission Company LLC, Alliant Energy and Dairyland Power are working together to mitigate the affect of this facility on Wisconsin import capability.

# What is “the” constraint?





## Why was this originally called inadequate?

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- Same element constrains ALL import directions
- Import capability is below import capability requirement needed to maintain LOLE 0.1
  - Traditionally need about 500 MW
  - $(22\% - 18\%) * 12,000$
- Import capability is far below anticipated need/historical levels

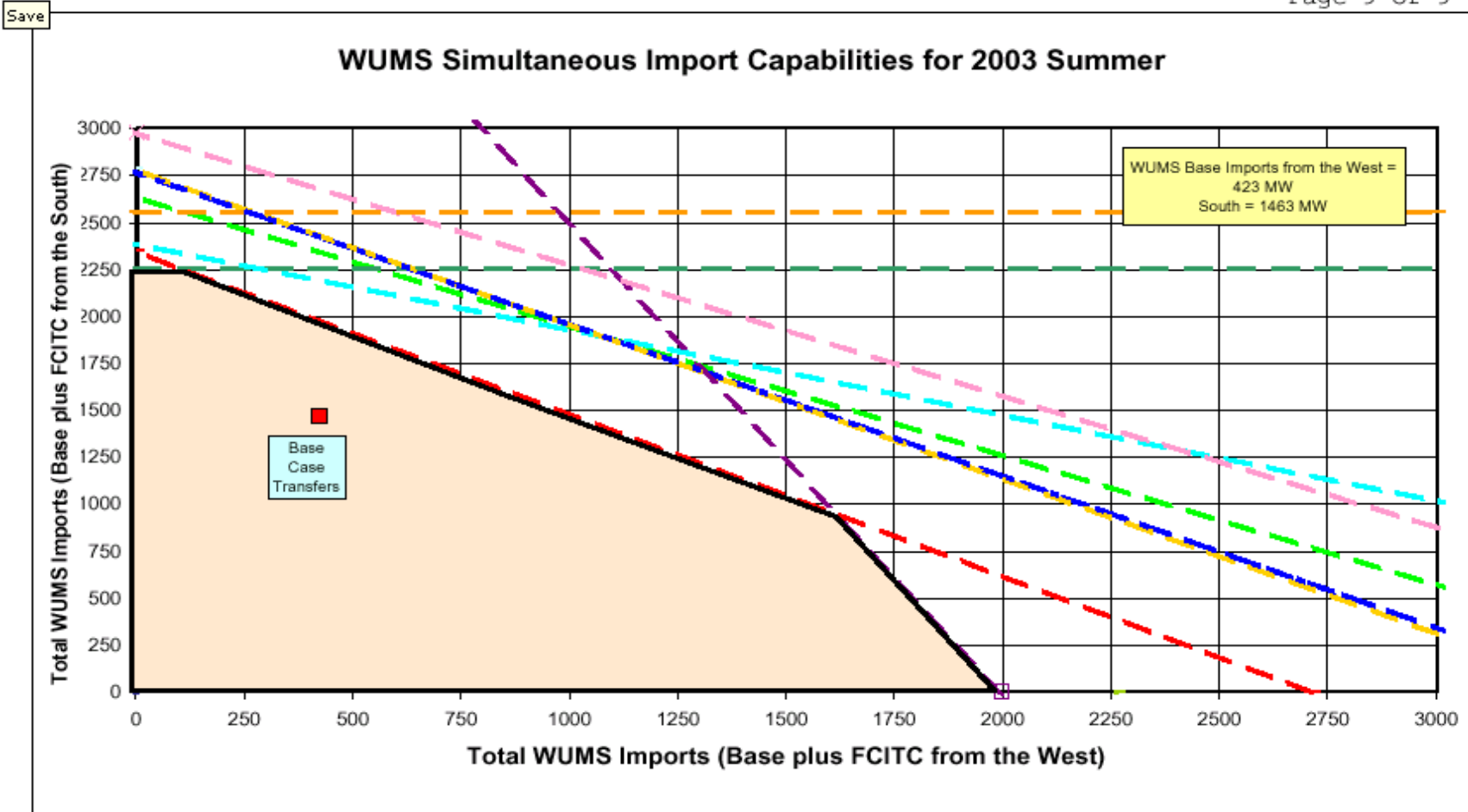


## What is the short-term solution?

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- Move DPC spare 161-69 kV transformer to Galena for temporary installation / parallel operation
- Estimated cost of less than \$50K
- This will eliminate the need to open the Miners 69 kV breaker and thereby increases emergency import capability
- Potential redispatch pairs have been identified  
<http://oasis.midwestiso.org/OASIS/ATC>

# What is the revised emergency import capability?



- |                                                                                                                        |                                                                  |                                                                                                                   |                                              |
|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
|  Blackhawk-ColleyRd 138 kV          | for outage of Paddock-Rockdale 345 kV                            |  Golf Mills-Niles 138 kV Blue | for outage of Golf Mills-Skokie 345 kV Blue  |
|  Eau Claire-Arpin 345 kV Flow Limit | for outage of N/A                                                |  Paddock 345/138 kV Tr.       | for outage of Paddock-Rockdale 345 kV        |
|  Center-Fiebrantz 138 kV            | for outage of Arcadian-Granville 345 kV                          |  Paris-St Martins 138 kV      | for outage of Pleasant Prairie-Racine 345 kV |
|  Lore-Turkey River-Cassville 161 kV | for outage of Wempletown-Paddock 345 kV & Kaiser-Lancaster 69 kV |                                                                                                                   |                                              |
|  Pleasant Prairie-Racine 345 kV     | for outage of Wempletown-Paddock 345 kV & Kaiser-Lancaster 69 kV |                                                                                                                   |                                              |
|  Salem 345/161 kV Tr                | for outage of Wempletown-Paddock 345 kV & Kaiser-Lancaster 69 kV |                                                                                                                   |                                              |



## What is the base import level and the new capability?

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- 500 MW + 1532 MW from the South
  - 500 MW incremental
  - 1532 MW base case transactions
- 600 MW + 354 MW from the West
  - 600 MW incremental
  - 354 MW base case transactions
- Total base imports: 1886 MW

## How does this compare to 2002?

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- 750 MW + 1080 MW from the South
  - Base transaction from South have increased by 451 MW for '03
- 300 MW + 550 MW from the West
  - Base transactions from West have decreased by 185 MW for '03
- Net 266 MW total base increase from 2002 to 2003.
- Stronger bias from the South



## Follow-up / Questions

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- For additional information, see the *2003 MAIN Summer Transmission Assessment Study*

[www.maininc.org/prot\\_info/tasg03s.pdf](http://www.maininc.org/prot_info/tasg03s.pdf)

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