

MR-00338: Economic Dispatch of Linked Wheels

Response to Technical Panel Questions on the Working Group's Proposal



Question:

- How does the dispatch scheduling optimizer (DSO) simultaneously evaluate and schedule import, export and linked wheel transactions under the new proposal?

Answer:

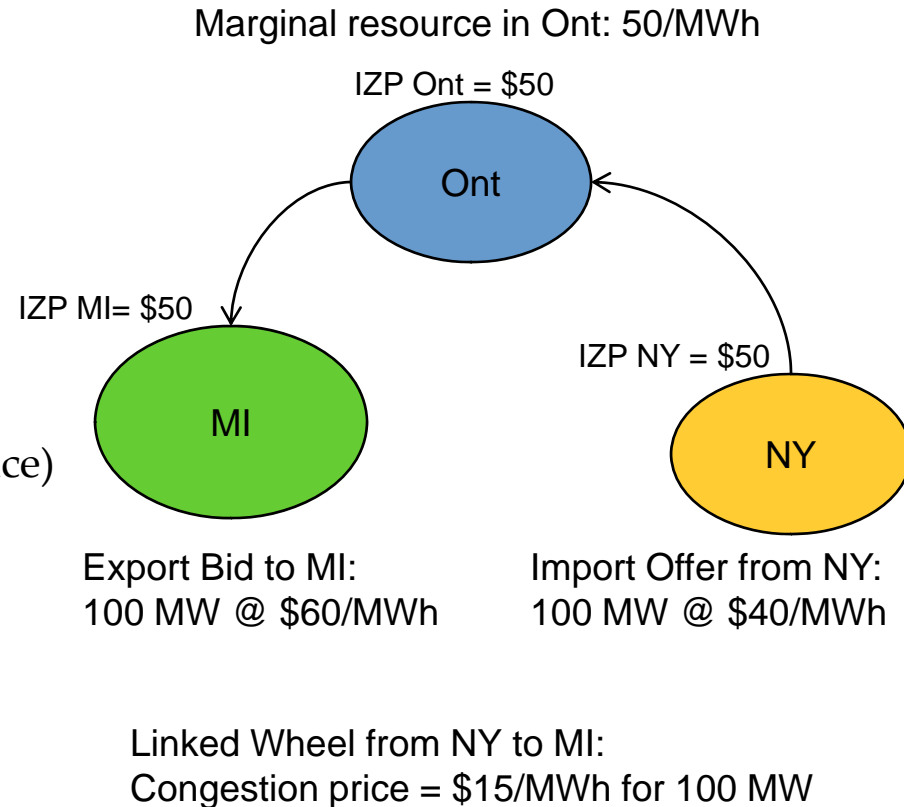
- Constrained scheduling process maximizes gain from trade
 - Transaction fully scheduled if positive contribution to gain from trade
 - Transaction partially scheduled if zero contribution to gain from trade (marginal transaction)
 - Transaction not scheduled if negative contribution to gain from trade

Scenario 1:

- No constraints in the system
- Intertie zone price (IZP) for all areas is \$50
(set by the Ont resource since no congestion)

Gains from Trade

- Export gain is \$10 (export bid price – sink IZP)
- Import gain is \$10 (source IZP – import offer price)
- Linked wheel gain is \$15
[linked wheel bid price - (sink IZP - source IZP)]
- All transactions will be fully scheduled

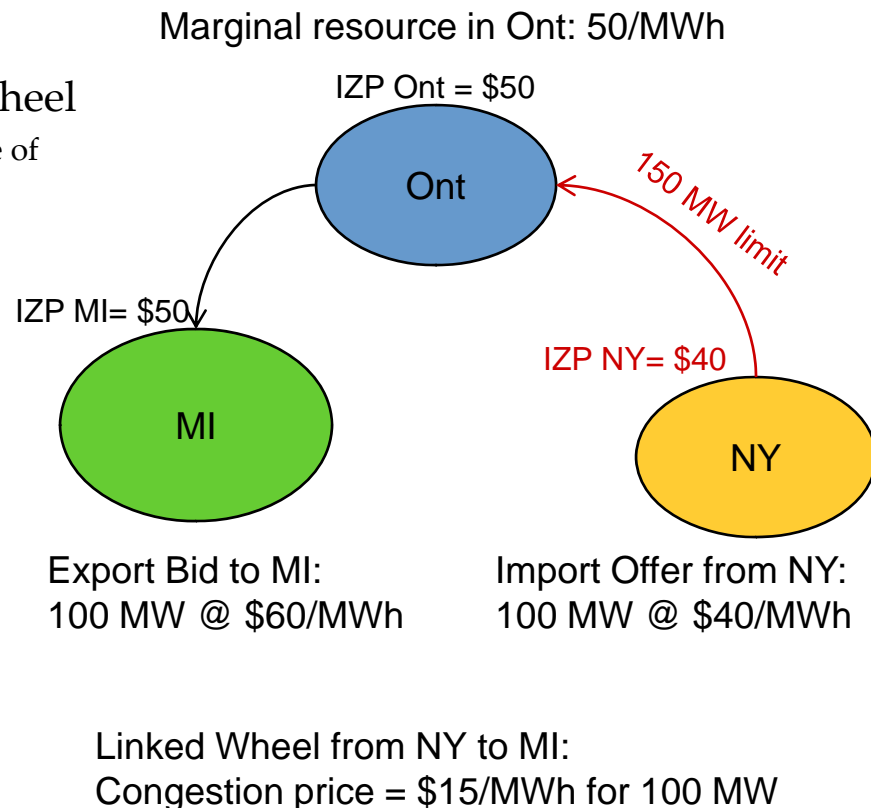


Scenario 2:

- Assume a 150 MW limit on imports from NY
- Will have to choose between import and linked wheel
 - Increasing the limit by 1 MW would allow either 1 MW more of the import or the linked wheel
 - Import benefit is \$10, linked wheel benefit is \$15
- More benefit for the linked wheel so 100 MW of linked wheel and 50 MW of import scheduled
- Import is the marginal unit so IZP NY = \$40
- IZP Ont, IZP MI still \$50 (no congestion)

Gains from Trade

- Export gain is \$10 (export bid price – sink IZP)
- Import gain is \$0 (source IZP – import offer price)
- Linked wheel gain is \$5
[linked wheel bid price - (sink IZP - source IZP)]

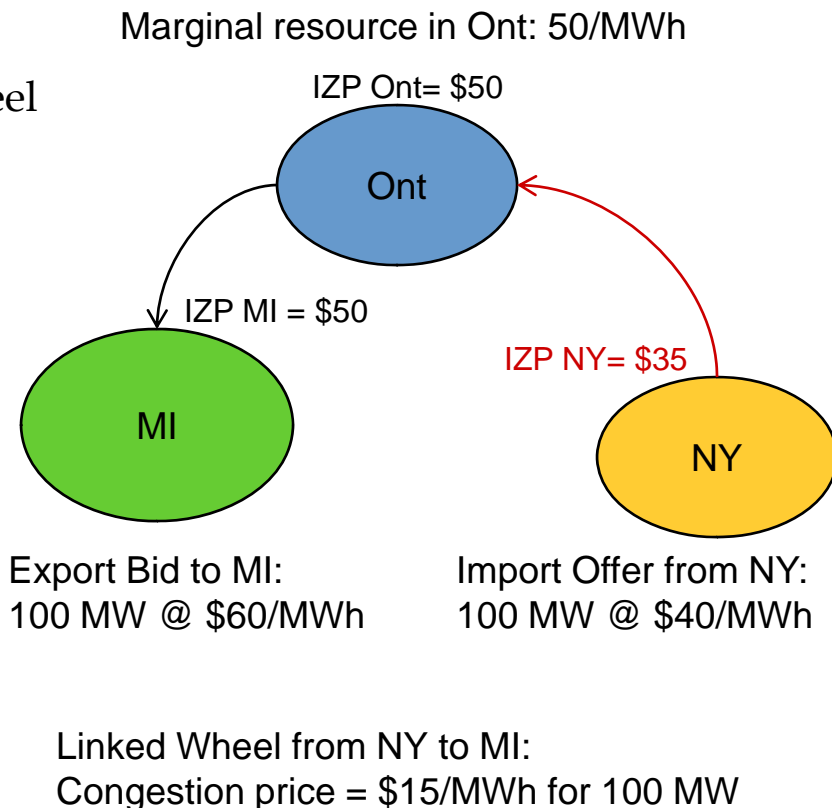


Scenario 3:

- Assume a 80 MW limit on imports from NY
- Will have to choose between import and linked wheel
 - More benefit for the linked wheel so 80 MW of linked wheel and 0 MW of import scheduled
- Linked wheel is the marginal unit so IZP NY = \$35
- IZP Ont, IZP MI still \$50 (no congestion)

Gains from Trade

- Export gain is \$10 (export bid price – sink IZP)
- Import gain is -\$5 (not scheduled)
- Linked wheel gain is \$0
[linked wheel bid price - (sink IZP - source IZP)]



Scenario 4:

- Assume a 80 MW limit on imports from NY and a 90 MW limit from Ont to MI
- Will have to choose between import, export & linked wheel
- What scheduling decision maximizes gain from trade?
 1. 80 MW of import, 90 MW of export, or
 2. 80 MW linked wheel, 10 MW export

Gains from Trade

1. 80 MW of import, 90 MW of export
 - Export gain is \$0 (marginal resource)
 - Import gain is \$0 (marginal resource)
 - Linked wheel gain is -\$5 (not scheduled)
2. 80 MW of linked wheel, 10 MW of export
 - Export gain is \$0 (marginal resource)
 - Import gain is -\$5 (not scheduled)
 - Linked wheel gain is -\$10 (not scheduled)

Gains from trade maximized under schedule 1.

