

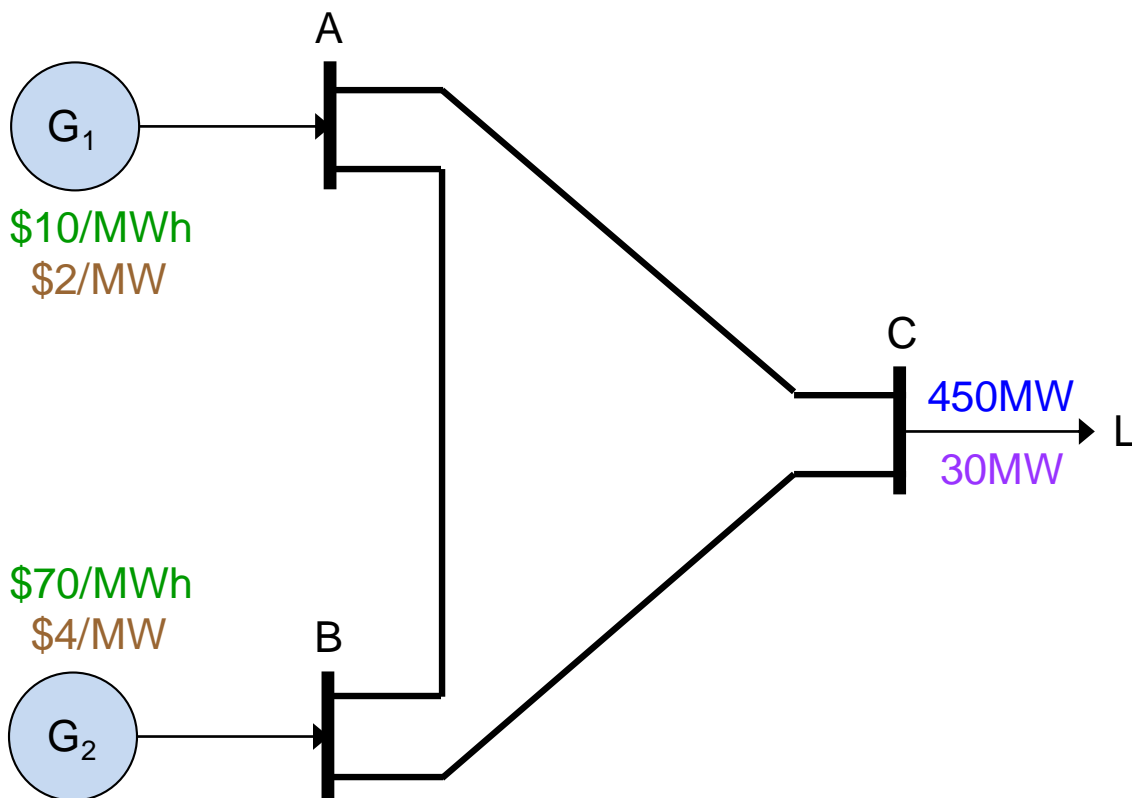


California ISO

DAME Appendix C: Local Market Power Mitigation Examples

Local Market Power Mitigation in IFM

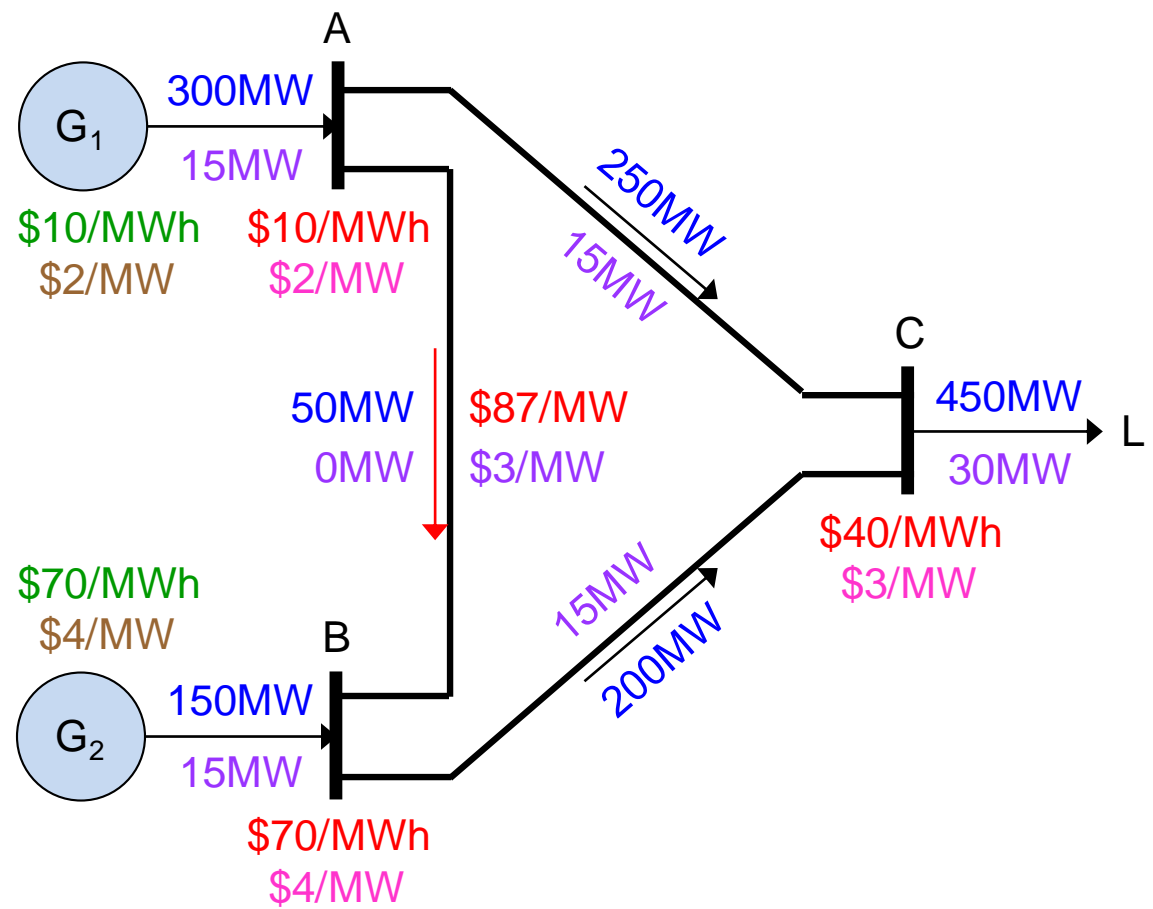
Example 1: Setup



- G_1
 - ◆ Energy bid: \$10/MWh
 - ◆ IRU bid: \$2/MW
- G_2
 - ◆ Energy bid: \$70/MWh
 - ◆ DEB: \$40/MWh
 - ◆ IRU bid: \$4/MW
- L
 - ◆ Energy self-schedule: 450MW
 - ◆ IRU requirement: 30MW
- Line A-B power flow limit: 50MW

Local Market Power Mitigation in IFM

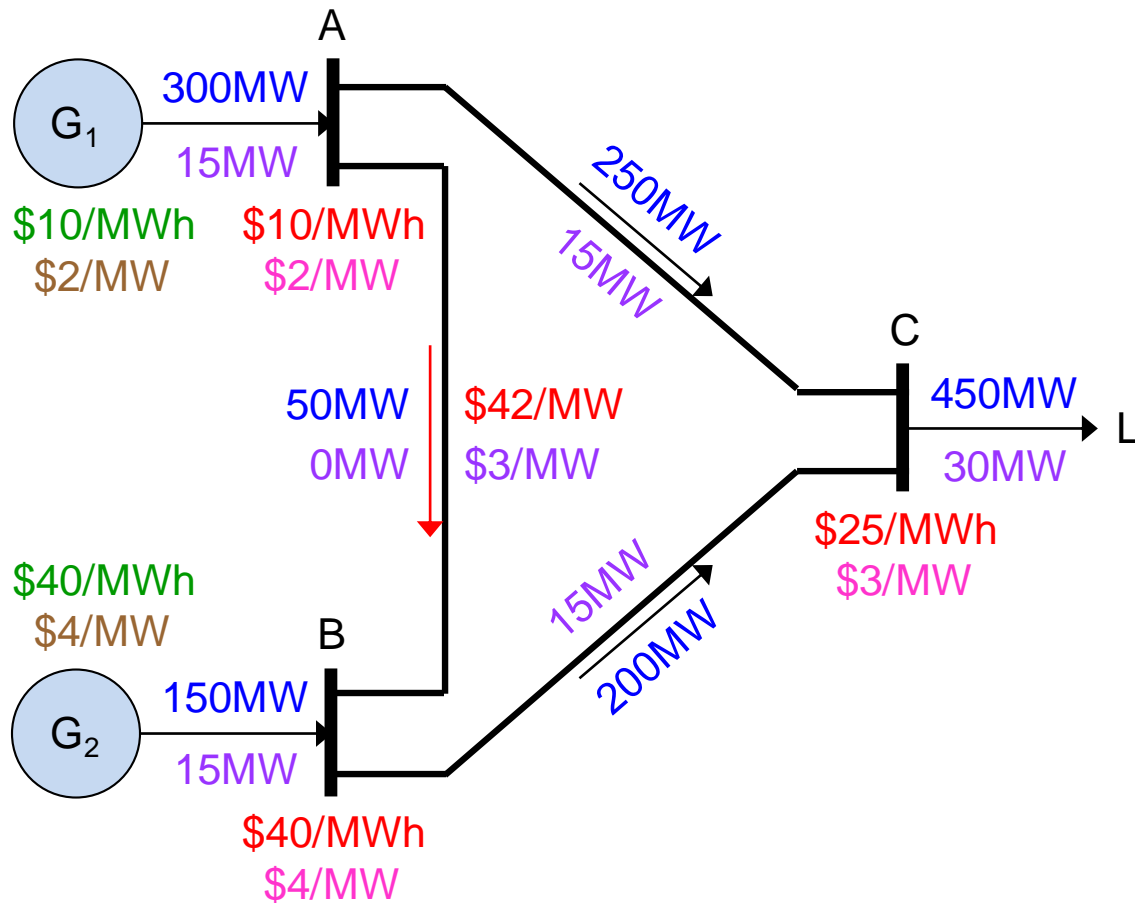
Example 1: MPM Base and IRU Deployment Scenario



- G₁
 - ◆ Schedule: 300MW; IRU award: 15MW
- G₂
 - ◆ Schedule: 150MW; IRU award: 15MW
- Line A-B power flow at limit: 50MW
 - ◆ Shadow prices: \$87/MWh, \$3/MW
- LMPs
 - ◆ A: Energy: \$10/MWh; IRU: \$2/MW
 - ◆ B: Energy: \$70/MWh; IRU: \$4/MW
 - ◆ C: Energy: \$40/MWh; IRU: \$3/MW

Local Market Power Mitigation in IFM

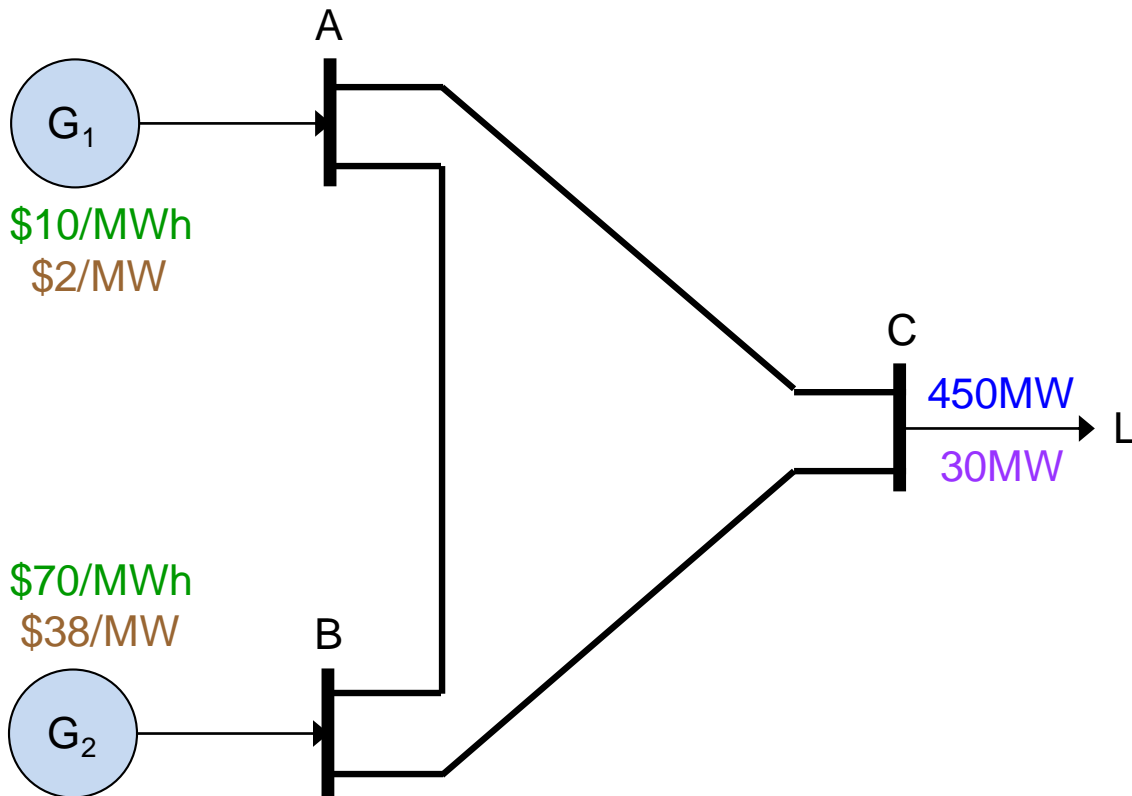
Example 1: IFM Base and IRU Deployment Scenario



- G_1
 - ◆ Schedule: 300MW; IRU award: 15MW
- G_2
 - ◆ Schedule: 150MW; IRU award: 15MW
 - ◆ Energy bid is mitigated to the higher of DEB or competitive LMP (\$40/MWh)
- Line A-B power flow at limit: 50MW
 - ◆ Shadow prices: \$42/MW, \$3/MWh
- LMPs
 - ◆ A: Energy: \$10/MWh; IRU: \$2/MW
 - ◆ B: Energy: \$40/MWh; IRU: \$4/MW
 - ◆ C: Energy: \$25/MWh; IRU: \$3/MW
- IRU cost allocated to L: \$90

Local Market Power Mitigation in IFM

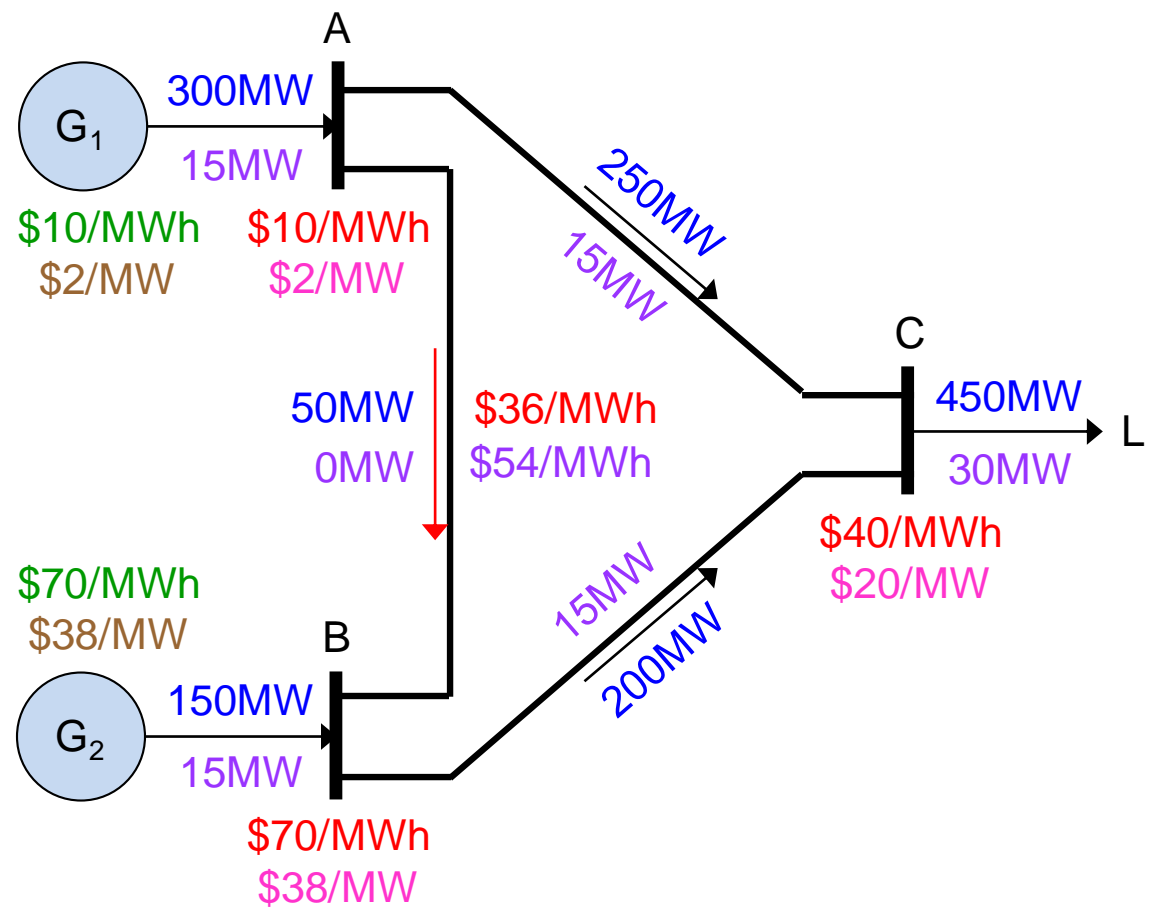
Example 2: Can G_2 exercise market power in IRU?



- G_1
 - ◆ Energy bid: \$10/MWh
 - ◆ IRU bid: \$2/MW
- G_2
 - ◆ Energy bid: \$70/MWh
 - ◆ DEB: \$40/MWh
 - ◆ IRU bid: \$38/MW
- L
 - ◆ Energy self-schedule: 450MW
 - ◆ IRU requirement: 30MW
- Line A-B power flow limit: 50MW

Local Market Power Mitigation in IFM

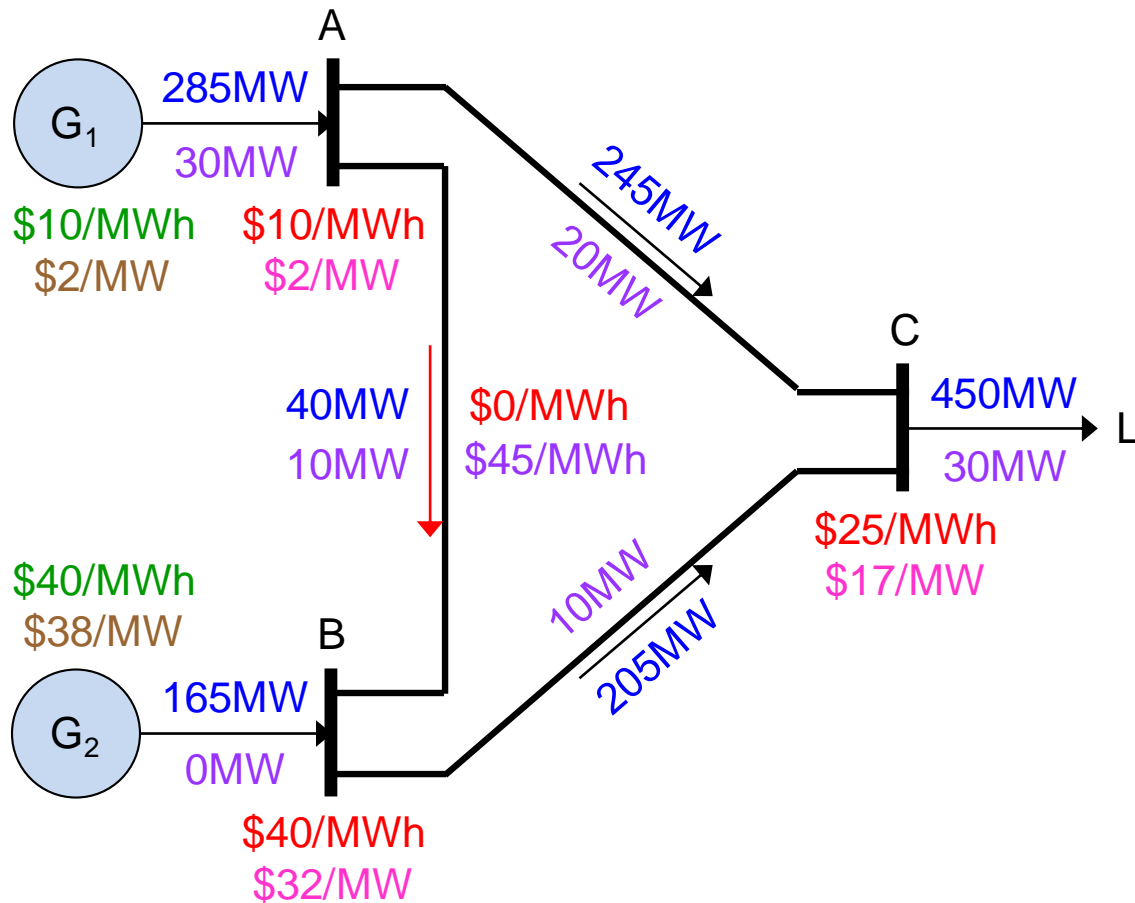
Example 2: MPM Base and IRU Deployment Scenario



- G_1
 - ◆ Schedule: 300MW; IRU award: 15MW
- G_2
 - ◆ Schedule: 150MW; IRU award: 15MW
- Line A-B power flow at limit: 50MW
 - ◆ Shadow prices: \$36/MWh, \$54/MWh
- LMPs
 - ◆ A: Energy: \$10/MWh; IRU: \$2/MW
 - ◆ B: Energy: \$70/MWh; IRU: \$38/MW
 - ◆ C: Energy: \$40/MWh; IRU: \$20/MW
- IRU cost allocated to L: \$600

Local Market Power Mitigation in IFM

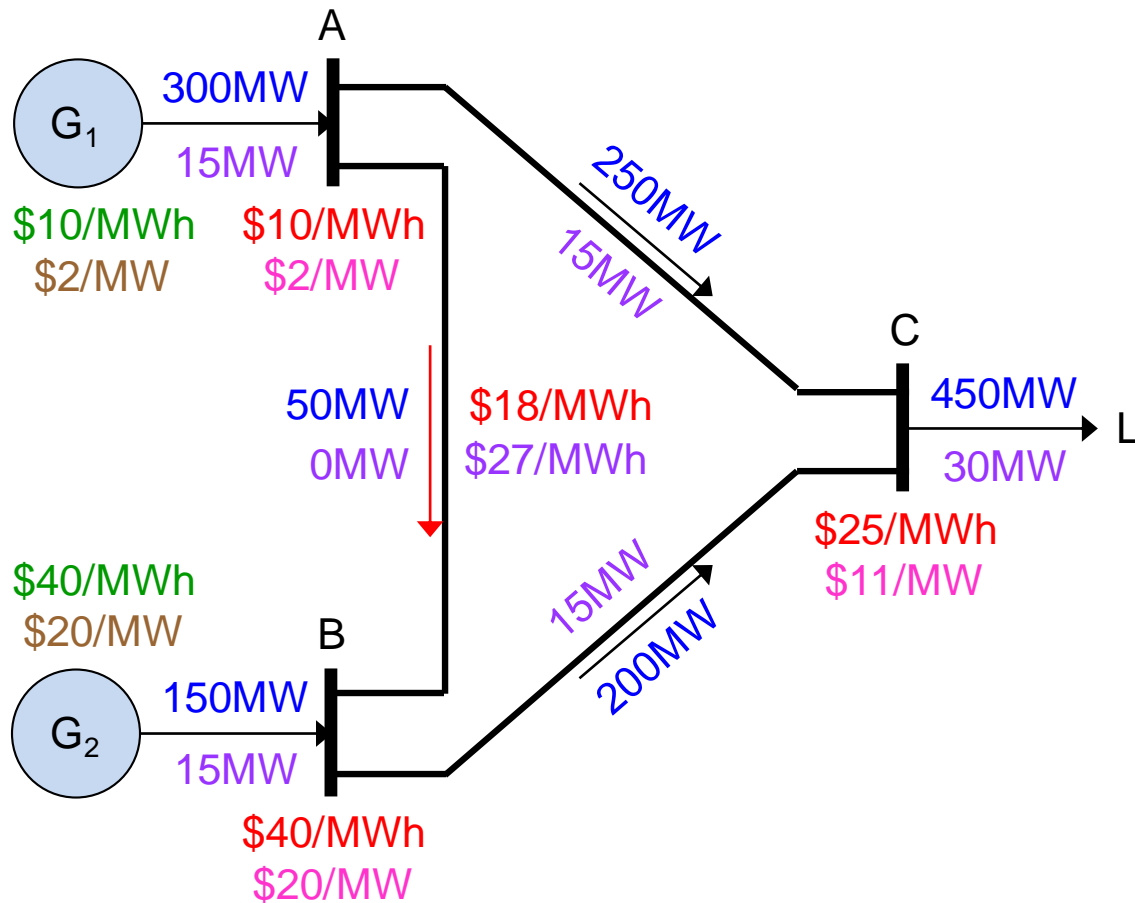
Example 2: IFM Base and IRU Deployment Scenario



- G_1
 - ◆ Schedule: 285MW; IRU award: 30MW
- G_2
 - ◆ Schedule: 165MW; IRU award: 0MW
 - ◆ Energy bid is mitigated to the higher of DEB or competitive LMP (\$40/MWh)
- Line A-B at limit: 40MW + 10MW
 - ◆ Shadow prices: \$0/MWh, \$45/MWh
- LMPs
 - ◆ A: Energy: \$10/MWh; IRU: \$2/MW
 - ◆ B: Energy: \$40/MWh; IRU: \$32/MW
 - ◆ C: Energy: \$25/MWh; IRU: \$17/MW
- IRU cost allocated to L: \$60

Local Market Power Mitigation in IFM

Example 2: IFM with both Energy and IRU Mitigation



- G_1
 - ◆ Schedule: 300MW; IRU award: 15MW
- G_2
 - ◆ Schedule: 150MW; IRU award: 15MW
 - ◆ Energy bid is mitigated to \$40/MWh
 - ◆ IRU bid is mitigated to \$20/MW
- Line A-B power flow at limit: 50MW
 - ◆ Shadow prices: \$18/MWh, \$27/MWh
- LMPs
 - ◆ A: Energy: \$10/MWh; IRU: \$2/MW
 - ◆ B: Energy: \$40/MWh; IRU: \$20/MW
 - ◆ C: Energy: \$25/MWh; IRU: \$11/MW
- IRU cost allocated to L: \$330