Load Payments

Market Outcomes
Objectives

• At the conclusion of this module you will be able to.....
  – Demonstrate the effect of congestion on load payments
LMP and Load Payments - Myths

- Security constrained economic dispatch minimizes load payments
- If we remove all transmission constraints, loads will pay less

These are common misconceptions
Load Payments - Case 1

Load = 10,000MW
11,000MW @ $20
10,500MW Dispatched

LMP = $20

11,000MW @ $100
9,500MW Dispatched

LMP = $100

Flow = 500 MW
Limit = 500 MW

Total Load Payments = (10,000 * $20) + (10,000 * $100) = $1.2 M
Load Payments - Case 2

Load = 10,000MW
LMP = $100
Total Load Payments = (10,000 * $100) + (10,000 * $100) = $2.0 M

Flow = 1,000 MW
Limit = 1,500 MW

11,000MW @ $20
11,000MW Dispatched

11,000MW @ $100
9,000MW Dispatched

LMP = $100

Load Payments Exercise

Load = 4,000MW

5,000MW @ $40

Limit = 5,000MW @ $80

Load = 4,000MW

Calculate the total system load payments with a transmission limit of:
- 500 MW
- 1,500 MW
- Which is higher?
Residual Metered Load Pricing
Residual Metered Load Pricing Overview

• Residual Zone (Residual Metered Load Aggregates)
  – An aggregate containing all load buses in the fully metered EDC territory, minus all load that has been designated to be priced at a specific non-zonal (or nodal) location

• Residual Metered Load aggregate prices are defined by weighting each load bus LMP by that bus's residual metered load aggregate distribution factor
Nodal Load Impacts on Physical Zone Price

**Physical Zone Definition**

- Pnode A: 20% (20 MWh, $35 LMP)
- Pnode B: 15% (15 MWh, $40 LMP)
- Pnode C: 35% (35 MWh, $25 LMP)
- Pnode D: 30% (30 MWh, $45 LMP)

Total Zone Load Charges: $3525
Physical Zone LMP: $35.25

**Residual Zone Definition**

- Pnode A: 24% (20 MWh, $35 LMP)
- Pnode B: 15 MWh, $40 LMP
- Pnode C: 41% (35 MWh, $25 LMP)
- Pnode D: 35% (30 MWh, $45 LMP)

Total Zone Load Charges: $3525
Residual Metered Load LMP: $34.41
Questions?