

PowerWorld & SMD  
- Function and Application

May, 2004

## Background

- ◆ **Why we choose PowerWorld?**
  - **LBMP market**
    - **SCOPF essential for technical analysis**
  - **Multiple independent factors driving the market**
    - **Qualitative Analysis valued**
  - **Confidentiality of Physical data**
    - **Efficient Sensitivity Analysis desired**
  - **PowerWorld SCOPF nimble structure**  
**(Well organized user interface and integrated applications)**
    - **Efficient model set up**
  - **PowerWorld Graphic/Worksheet User-friendly interface**
    - **Effective communicate with trading Personal**

## Applications Using Powerworld SCOPF

### ◆ “Mature LBMP Market”

- PJM, NYISO, Nepool

- SCOPF Bus pricing reflect the transmission congestion due to interface or path thermal overload

- Capacity Addition and Attrition

- Transmission addition

- Easy sensitivity analysis w/ line change. For long term forecast, SCOPF depict informative LBMP profile

## Continued: Applications Using Powerworld SCOPF

### ◆ “Mature LBMP Market” (Continued)

#### ■ Generation and Transmission Outage

→ Without change system database, operation data setting, such as outage status provide efficient approach for daily model update

#### ■ Generation SCOPF with Fast Start function

→ Unit commitment has been discussed long before the SCOPF come to commercial use. Fast start is a step towards SCUC.

## Continued: Applications Using Powerworld SCOPF

### ◆ Developinge LBMP Market”

- PJM RTO Market Integration
- ComEd, NICA-PJM pathway, PJM

### ◆ Prototype SMD Market

- CAISO, ERCOT
- Identify binding constraints under SCOPF
- Identify units of locational value
- Identify interface (Path) between LBMP Hub or Zones

## Functions of Power World

- ◆ **Tools Available**

- **Market feature: Interface, Injection group, etc**

- ◆ **Tools Of Interest**

- **Interchange index**

- **For quantifying Multiple adjacent area interchange**

- **Universal Fuel Index**

- **For scale production cost**