Joint Workshop on Decision Support for Water and Power Management
Progress and Perspectives

2005 MCEER Annual Meeting
Craig A. Davis, LADWP
Adam Rose, Penn State
Utility Performance Objectives Workshop

Decision Support for Earthquake Water and Power Management

May 24-25, 2004
Utility Performance Objectives Workshop

Purpose:
- Advance research and practice in decision support systems for the engineering management of critical lifelines, with an emphasis on earthquake utility performance objectives

Development
- Outcome of MCEER 2004 annual meeting session on Lifelines “Challenging Research/Implementation Issues”
Workshop Program & Participants

Program:
- 1-day presentations
- ½-day tour LADWP facilities
- ½-day discussion session

Participants included broad ranges of expertise:
- Utility, Disaster, Government, and Community
- Managers, Practitioners, and Researchers
- Lifeline and Earthquake Engineering, Socio-economics, Finance, Disaster preparedness, Community Resilience
Progress

Workshop Advancements:

- Multidisciplinary cooperation for research, development, and implementation of decision support systems.
- Understanding of current utility earthquake performance criteria.
- Identification of important areas of future activity.
- Collaborating opportunities for future developments in decision support.
Prospectives

Needs

– Post-earthquake fire flow requirements
– Prioritizing service restoration
– Disaster response forecasting
– Performance level metrics
– Water purification advisory impacts (Boil water notice)
– Conservation policies
– Multihazard considerations
Prospectives

NEED
Tools needed for decision support

OPPORTUNITY
Research and development opportunities

COOPERATIVE VENTURE
Organizations and professions who may take opportunity in fulfilling the need
Prospectives

NEED
Post-earthquake fire flow requirements

OPPORTUNITY
Research for fire flow with broken pipes based on construction type and urban density. Include economic loss from fires and locations of critical facilities (hospitals, chemical storage, etc.)

COOPERATIVE VENTURE
Fire department, water department, system and GIS modeling, social sciences, economics
Prospectives

NEED
Prioritizing service restoration

OPPORTUNITY
Research and develop coordination of restoration activities and plans between fire department and water, power, and gas utilities to optimize service and minimize fire. Include inter-system operability and economic impact for support of prioritization.

COOPERATIVE VENTURE
Fire department, water, power, and gas departments, disaster management, economics, political entities
Prospectives

NEED
Disaster response forecasting

OPPORTUNITY
Develop models for use in disaster response to aid in disaster planning and post-disaster resource allocation. Include impacts of transportation corridors.

COOPERATIVE VENTURE
Disaster managers, utility and transportation operations engineers
Prospectives

NEED
Performance level metrics

OPPORTUNITY
Develop internal and external metrics for evaluating, comparing, and communicating system performance levels to the organization and customers

COOPERATIVE VENTURE
Social sciences, utilities, engineering, political entities
Prospectives

NEED
Water Purification (boil water) Advisory impacts

OPPORTUNITY
Develop models for understanding and predicting community impacts from a water purification (boil water) advisory.

COOPERATIVE VENTURE
Economics, social sciences, water department, system modeling
Prospectives

NEED
Conservation policies

OPPORTUNITY
Research and develop post-disaster resource conservation (e.g. water, power) guidelines for officials to utilize in planning and administering.

COOPERATIVE VENTURE
Economics, social sciences, water and power departments, system modeling, disaster management, political entities
Prospectives

NEED
Multihazard considerations

OPPORTUNITY
Incorporate a multihazard approach in consideration that the needs are not constrained to earthquake disasters and capitalize on other hazard research funding. Include system functional modeling applicable to impacts from other hazards.

COOPERATIVE VENTURE
All possible
Outlook Summary

- Vast array of information on communicated during workshop
- Specific needs opportunities and cooperative ventures identified
- On the path to developing important tools for improving the decision making process
- Interest in future workshops with explicit model results