

▶ Chicago Energy Plan

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3rd Annual National CHP Roadmap Workshop
Boston, Massachusetts
October 24, 2002



Overview

- **Introduction**
 - Purpose
 - Background: Chicago blackouts
- **Chicago Energy Plan – Overview**
- **Implementation Program**
 - Chicago Industrial Energy Program
 - Encorp “Virtual Power Plant” Program
 - Hospital Education and Outreach Program
- **Summary / Conclusions**

Purpose

- **Commitments**
 - **U.S. DOE / EPA CHP Challenge: Double CHP by 2010**
 - **City of Chicago Energy Plan: @1 GW CHP/DG by 2010**
- **Purpose: Demonstrate the importance of establishing national, state, and city commitments in reaching our CHP Challenge Goal through activities associated with the Chicago Energy Plan**

City of Chicago: Background

- **Summer of 1999 Blackouts: July and August**
 - “Daley unleashes wrath on utility...”
 - Hit banks, financial exchanges, retail businesses, office towers and apt. bldgs in middle of business day
 - “BOMA estimates losses at \$100MM”
 - “threatened economic vitality in Chicago Region”
 - “ComEd’s Chairman vows to improve service...”
- **ISSUE: Rely on utility fixes or take responsibility for City’s Energy Future?**
- **RESULT: Chicago Energy plan issued in 2001**

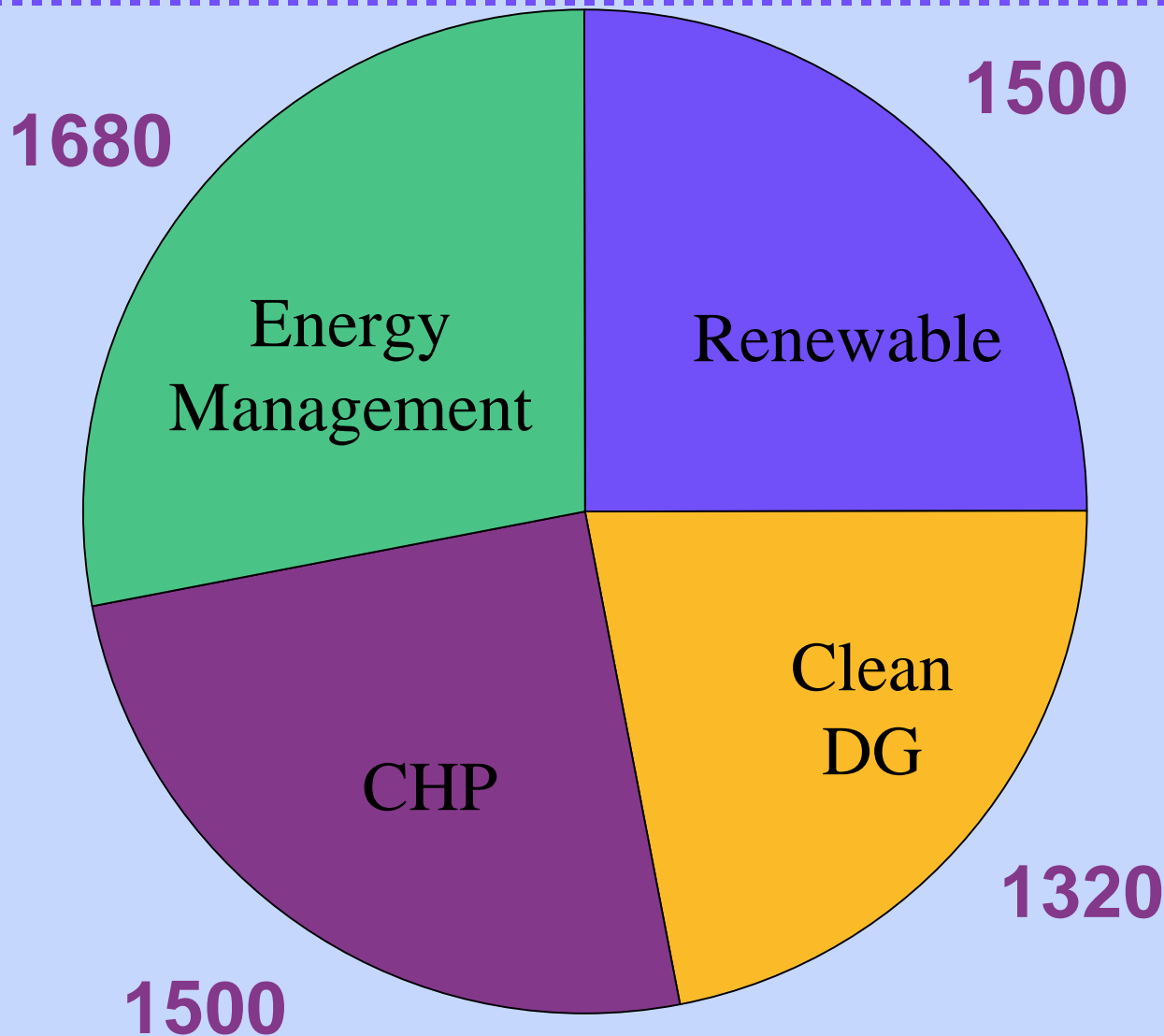
Chicago Energy Plan

- **Sets specific targets for changing the way we produce and use energy**
- **Outlines a strategy that is clean, affordable, and reliable**
- **Built on 3 Principles**
 - **Protect Consumers**
 - **Promote Economic Growth**
 - **Protect the Environment**
- **Two-Pronged Approach**
 - **Fix broken, inadequate or outdated parts of energy infrastructure, including regulatory systems**
 - **Prepare for the future by building a smarter energy infrastructure and building the capacity of energy managers and consumers to use it**

Chicago Energy Plan

- A series of actions are presented, including an energy mix for meeting Chicago's projected increase in electricity demand
- Save \$260MM through increase efficiency, DG, and CHP
- Estimates following air quality benefits:
 - CO₂ – 5.34MM tons reduction
 - NO_x – 112,000 tons reduction
 - SO_x – 215,000 tons reduction

Chicago Goal 6000 Million kWh



=Projected Growth over next 10 Years

CHP / DG Implementation Program

- **Developed Initial Document to address:**
 - Opportunities for DG and CHP (industrial, commercial, residential, institutional)
 - Barriers
 - Strategies and Programs
 - Monitoring and Metrics
- **Recommended Roadmap workshop**
 - Implemented July 10th, 2002
 - Led by Energetics
 - Involved 25 key energy professionals both regional and national (USCHPA and EPA)

CHP / DG Implementation Program

- **Key Outcomes from Roadmap Session:**
 - **Opportunities and Strategies identified**
 - Top opportunity - hospitals
 - **Action plans developed for top strategies**
 - Investigate financing mechanisms
 - Hold City sponsored CHP conference
 - Develop flagship CHP systems
 - Improve tariffs
 - Educate A/Es, and building owners / managers
 - Allow Utility to own/operate DG < 50 MWs
 - Identify sites with high reliability requirements
 - Complete grid overlay study
- **Taking initial actions and meeting regularly to determine progress**

Chicago Industrial Energy Plan

- **Programmatic effort to install CHP in areas that will maximize its benefits**
 - Review City grid weakspots and high emitting areas to prioritize areas
 - Identify key industrial candidates for CHP
 - Analyze the potential of creative uses for useable heat and system designs (Expert Panel Meeting – Run by Energetics)
 - Develop System conceptual designs, full cost estimates, and specifications to bid on installation
 - Repeatable Applications
 - Partnership, U.S. DOE, ORNL, GTI, UIC ERC, and numerous other A/Es

Chicago Industrial Energy Plan

■ STATUS

- Target “High potential” Plants being evaluated
 - Concrete Plant
 - Confectionary
 - Snack Food Plant
 - Chemical Plant
 - Metal Plating Plant
 - Dairy and Meat Plant
 - Metal Gear Plant
 - Metal Processing Plant
- Expect 20-30 MWs impact

Encorp “Virtual Power Plant”

- **Connecting City owned natural gas fired back-up power equipment through Encorp’s Virtual Power Plant System**
 - **To control a significant amount of power when needed to reduce system stress or when electric prices make it beneficial**
 - **Operated from City of Chicago’s Department of Environment**
 - **Targeting to connect 10 MWs**

Chicago Hospital CHP Program

- **3 Phase Program**
 - Educate Hospital Administrators
 - Incentive for site engineering analysis
 - Implementation assistance

- **Program Targets**
 - @42 hospitals in Chicago
 - @55 hospitals in Northern Illinois (DCCA)

Chicago Hospital CHP Program

■ PHASE I - EDUCATION

- Target Audience
 - Financial Administrators
 - Facility / Energy Administrators
- When: First Quarter of 2003
- Coordination
 - Metropolitan Chicago Health Care Council (MCHC)
 - American Society of Health Care Engineers (ASHE)

Chicago Hospital CHP Program

■ PHASE II – SITE EVALUATION

- Provide 50% of cost of site engineering analysis, up to \$5000
- Coordinating with Midwest Cogeneration Association

■ PHASE III – IMPLEMENTATION ASSISTANCE

- Possible low interest loans – City of Chicago
- Potential Bond Financing – State of Illinois

Chicago Energy Plan: Summary

- **Chicago may or may not reach goal of implementing 1GW, however:**
 - **Regulatory barriers will be addressed and fixed**
 - **Markets will be thoroughly assessed and CHP installations maximized**
- **City, State and National Commitments can make a significant impact on actions towards CHP implementation**
- **Sustainable Energy Planning efforts currently taking place in many major U.S. Cities**
 - **Trend towards Renewable Portfolio Standards**
- **Need to identify opportunities and act where we can to influence State and City Legislatures to adopt goals for CHP**

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