

# First CBCG Update Status Report: Time line, core data, detailed data



*Presented By*

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# Topics for the Day

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- **Three areas of study: description and deliverables**
- **Study time-line**
  - Detailed time line for critical path area (EIA)
- **Core data needs**
  - Scenario matrix defining scenarios for EIA
- **Preview of detailed data needs**



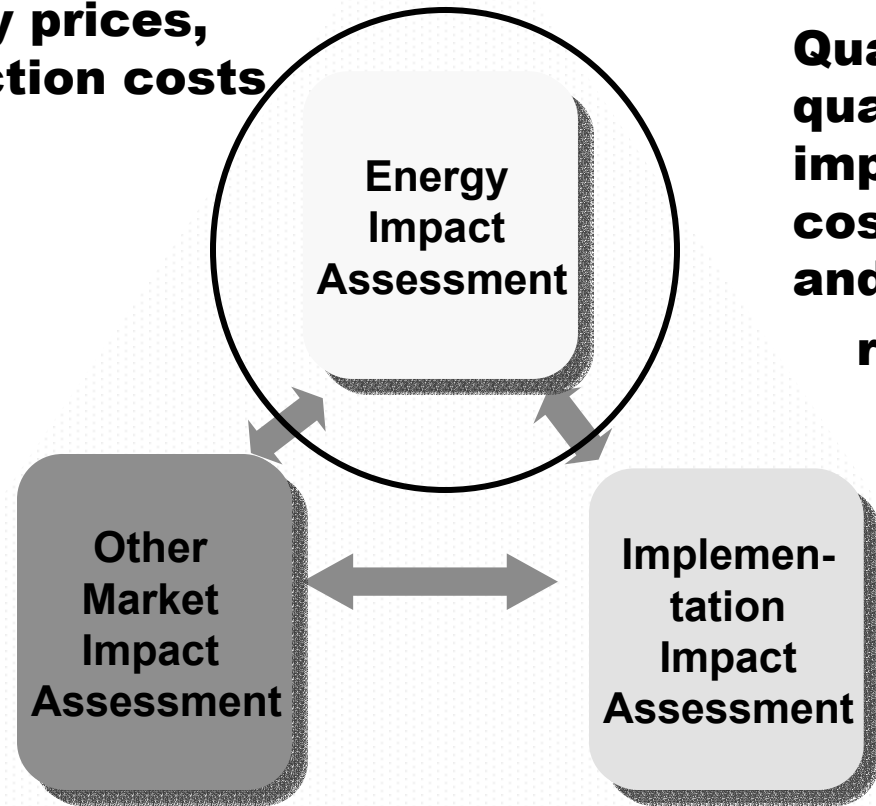
# We view study effort as three-fold set of activities

**Quantifies impacts to the energy market, system dispatch, energy prices, resulting production costs**

**Critical-path focus for today**

**Quantitative and qualitative treatment of implementation startup costs, ongoing costs, and other transition-related impacts for ERCOT and market participants**

**Qualitative and quantitative measurement of non-energy impacts**



**Scenario/Case Definition**

**All built on a common definition of cases**



# Deliverables - EIA

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- **Assumptions memo(s) prior to simulation**
- **Preliminary results PowerPoint-style report and Final written report**
  - Assumptions captured
  - Discussion of methodologies
  - Results quantified
    - Overall Impacts to ERCOT
    - Impacts by sub-region (load aggregation area), monthly or annually
    - Segment analysis – quantitative/qualitative as applicable
- **Detailed data on a CD to allow ERCOT and participants' further post-processing**
  - Hourly, location-specific data as defined by CBCG
  - Generator-specific impacts (dispatch, income, fuel cost)



# Deliverables - OMIA

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- **Preliminary report**

- Matrix market characteristics and measurement metrics defined
- Presentation of any empirical or other quantitative results being gathered
- Results to date

- **Final report**

- Completed analysis of each market characteristic varying between cases by metric
  - Qualitative discussion
  - Empirical/Quantitative results as applicable

- **Implications of impacts by Segment**



# Deliverables – Implementation Impacts

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- **Preliminary outline and results (~ summer)**
- **Summary of Impacts Report**
  - Summary of costs
  - Major cost drivers and cost risks
  - Treatment of other major risks
  - Qualitative impacts
- **Detailed cost spread sheets (Excel workbook format)**
  - For ERCOT
  - For Market Participants, based on reasonable categorization of market participants



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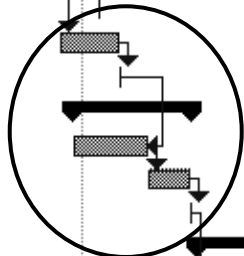
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# Project Plan - 1

ID	Task Name	Start	Finish	Q2 '04					Q3 '04			Q4 '04		
				Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct		
1	<b>TCA/KEMA Cost Benefit Analysis</b>	<b>Mon 3/1/04</b>	<b>Mon 11/1/04</b>											
2	<b>Scenario Definition Effort</b>	<b>Mon 3/15/04</b>	<b>Tue 4/6/04</b>											
3	Initial Scenario Definition	Mon 3/15/04	Fri 3/26/04											
4	Report Scenarios and Core Data Needs to CBCG	Tue 4/6/04	Tue 4/6/04											
5														
6	<b>Energy Impact Assessment</b>	<b>Mon 3/15/04</b>	<b>Wed 10/13/04</b>											
7	Define Scope/ Methodology	Mon 3/15/04	Fri 3/26/04											
8	<b>Core Data and Modeling Assumptions</b>	<b>Mon 3/15/04</b>	<b>Fri 5/7/04</b>											
9	Develop Core Data Needs and Provide to CBCG	Mon 3/15/04	Tue 3/23/04											
10	Provide Update on Assumptions to CBCG	Tue 4/6/04	Tue 4/6/04											
11	CBCG Core Data Input Period	Wed 3/24/04	Mon 4/12/04											
12	Core Data is Frozen	Tue 4/13/04	Tue 4/13/04											
13	<b>CBCG Review of Assumptions</b>	<b>Mon 3/29/04</b>	<b>Fri 5/7/04</b>											
14	Develop and Deliver Assumptions Memo	Mon 3/29/04	Thu 4/22/04											
15	CBCG Assumption Review Period	Fri 4/23/04	Thu 5/6/04											
16	Modeling Assumptions are Frozen	Fri 5/7/04	Fri 5/7/04											
17	<b>Perform First Five Year Runs, Develop Results, Report</b>	<b>Mon 5/10/04</b>	<b>Fri 7/9/04</b>											
18	Perform First Five Years' Runs	Mon 5/10/04	Wed 6/9/04											
19	Provide Informal Report on First Five Years' Results	Fri 7/9/04	Fri 7/9/04											
20	<b>Perform Second Five Years' Runs, Results, Report</b>	<b>Tue 6/1/04</b>	<b>Thu 7/15/04</b>											
21	Develop Extended Forecast for Later Five Years	Tue 6/1/04	Thu 7/1/04											
22	Perform Second Five Years' Runs	Fri 7/2/04	Thu 7/15/04											
23	Develop PowerPoint-Style Report of Preliminary Results	Mon 7/12/04	Wed 8/11/04											
24	Deliver Preliminary Results	Thu 8/12/04	Thu 8/12/04											
25	Refine Results Reports	Fri 8/13/04	Wed 10/13/04											
26														
27														
28														
29														



**Fixed review periods and data freezes are necessary to finish critical path modeling**



# Project Plan - 2

ID	Task Name	Start	Finish	Q2 '04					Q3 '04			Q4 '04		
				Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct		
30														
31	<b>Other Market Impact Assessment</b>	<b>Mon 3/15/04</b>	<b>Tue 8/17/04</b>											
32	Define Scope/Methodology	Mon 3/15/04	Tue 5/4/04											
33	Explore Empirical Evidence	Mon 3/22/04	Tue 6/1/04											
34	Develop Theoretical Discussions	Mon 3/29/04	Mon 6/7/04											
35	Report on Preliminary Findings	Mon 5/24/04	Mon 7/19/04											
36	Perform Follow-up/Closure Activities, Report	Thu 7/22/04	Tue 8/17/04											
37														
38	<b>Implementation Cost/Impact Assessment</b>	<b>Mon 3/1/04</b>	<b>Fri 10/29/04</b>											
39	Mobilize and Review Project Definition	Mon 3/1/04	Fri 3/5/04											
40	Review Proposed Market Design Changes	Mon 3/8/04	Fri 3/26/04											
41	Inventory Current Situation	Mon 3/29/04	Fri 4/16/04											
42	Assess Future Operational and Business Processes	Mon 4/19/04	Fri 5/7/04											
43	Identify of Future Systems	Mon 4/19/04	Fri 5/7/04											
44	Develop Detailed Costs	Mon 5/10/04	Fri 6/18/04											
45	Review and Finalize of Costs	Mon 6/21/04	Fri 10/29/04											
46														
47	<b>Project Oversight, Coordination, Deliverables</b>	<b>Mon 3/15/04</b>	<b>Mon 11/1/04</b>											
48	Provide Project Coordination	Mon 3/15/04	Mon 11/1/04											
49	Coordinate/Generate Preliminary Findings Power Point Results	Thu 7/1/04	Thu 7/15/04											
50	Deliver Preliminary PowerPoint-Style Report	Fri 7/16/04	Fri 7/16/04											
51	Support Review of Preliminary Results	Thu 7/22/04	Tue 8/17/04											
52	Coordinate/Generate Final Findings Report	Tue 7/20/04	Tue 9/21/04											
53	Deliver Final Report	Wed 9/22/04	Wed 9/22/04											
54	Support Review of Final Results	Wed 9/22/04	Mon 11/1/04											



# Near-term Milestones are Critical

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
March	<b>28</b>	<b>29</b>	<b>30</b>	<b>31</b>	<b>1</b>	<b>2</b>	<b>3</b>
April	<b>4</b>	<b>5</b>	<b>6</b> CBCG Meeting	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
	<b>11</b>	<b>12</b> Core Data Due to TCA	<b>13</b> Core Data Frozen	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>
	<b>18</b>	<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b> Draft Assumptions from TCA	<b>23</b>	<b>24</b>
May	<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b>	<b>29</b>	<b>30</b>	<b>1</b>
	<i>Plan an additional meeting with TCA telephone participation?</i>						
	<b>2</b>	<b>3</b>	<b>4</b> CBCG Meeting	<b>5</b>	<b>6</b> Assumptions Feedback due to TCA	<b>7</b> Assumptions frozen	<b>8</b>



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# Core data elements: mostly coming from ERCOT

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- **Load flow models**
- **Identification of transmission constraints limits**
- **Nodal mapping to regions identified under the Regional analysis (above)**
- **Attribution of location load to Muni and Electric Cooperative organizations as required for segment analysis**
- **Identification of generation ownership to Independent Power Producers as required for the segment analysis**
- **Identification of the fraction of load served by REP in each Region as required for the segment analysis**



# Core data also includes Scenario Definitional matrix for modeling

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- **Draft matrix shows modeling characteristics to date**
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
- **Note that matrix only characterizes cases for EIA modeling. Need further definition for OMIA and Implementation Impact Analysis**



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# Detailed data needs will be captured in form of an Assumptions Memo

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- **Assumptions memo will capture all of the specific assumption data**
- **We will use this memo to provide straw-person of assumptions**
  - Much of the areas of data would be populated
  - Some areas will need your input before being populated
- **CBCG needs to agree on process for review/finalization**
- **We'll take the balance of the time today to talk through the assumption data areas**



# Detailed data needs will be captured in form of an Assumptions Memo

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- **Assumption set includes both methodology and detailed data**
  - Load Inputs
  - Thermal Unit Characteristics
  - Planned Additions and Retirements
  - Nuclear Unit Analysis
  - Fuel Price Forecasts
  - Transmission System Representation
  - Environmental Regulations
  - Conventional Hydro & Pumped Storage Units
  - External Region Supply Curves
  - NUG Contracts
  - Dispatchable Demand (Interruptible Load)
  - Market Model Assumptions





# Loads, Thermal Plants, Additions and Retirements

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- **Loads – first 5 years from T.O.’s (?), second five years generated by TCA**
  - Peak demand for year, total energy for each year
  - Data sources captured
- **Thermal Plants**
  - Description of TCA database and sources
    - Unit type (steam, combined-cycle, combustion turbine, cogeneration, etc.)
    - Heat rate values and curve
    - Summer and winter capacity
    - Variable operation and maintenance costs
    - Fixed operation and maintenance costs
    - Forced and planned outage rates
    - Minimum up and down times
    - Quick start and spinning reserves capabilities
    - Startup costs



# Additions and Retirements

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- **Description of TCA's economic model for additions and retirements**
- **Specific assumptions used in model**
  - All-In Capital Cost (\$/kW)
  - Debt/Equity Ratio
  - Return on Equity
  - Cost of Debt
  - Term of Debt
  - Fixed O&M (\$/kW-yr)
  - Variable O&M (\$/MWh)
  - Full Load Heat Rate (Btu/kWh)
  - Standard Units Size (MW)
  - Forced Outage Rate
  - Planned Outage Rate



# Nuclear Analysis, Fuel Forecast, Transmission System, Environmental Representation

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- **Nuclear Analysis**

- Description of representation
- Outage rates and schedules

- **Fuel Price Forecast**

- TCA will provide separate memo and spread-sheet results of the fuel price forecast
  - Description of methodology
  - Specific assumptions used, such as:
    - Hub forecasts
    - LDC charges

- **Transmission System Representation**

- Load flow sources
- Intertie limits

- **Environmental Representation, such as**

- Description
- Economic value of tradable permits



# Renewables, QFs/Co-gen, Interruptible Loads, Market Model Assumptions

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- **Renewable Representation**
  - Modeling assumptions for renewables
  - Renewable additions over study horizon
- **Co-generation and QF modeling: capacity, modeling**
- **Interruptible Load Modeling**
- **Market Model Assumptions**
  - Bidding Assumptions
  - Operating Reserves (spinning and standby)
  - Transmission Losses
  - Capacity Requirements



# Open Process Questions

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- **Core data**

- What stakeholder input is needed?
- How will the stakeholders interact with ERCOT to finalize core data during this time?
- What else is needed to ensure 4/12 delivery date?

- **Detailed Data Input**

- Timeline calls for TCA draft assumptions memo by 4/22
  - TCA will likely need input for you prior to then to populate the memo to the greatest extent possible
  - What mechanism will be used for such requests?
- The CBCG's review period is through 5/6
  - What interaction is desired between 4/22 and 5/6 to support the CBCG's finalization
  - Let's think this through and establish a solid process

