



# Turner & Townsend plc

Integrated Quantitative Project Risk Analysis  
The Turner & Townsend Way

Palisade User Conference

Jersey City New Jersey

22 Oct 09

Jay O'Connor - Director



## Global footprint...

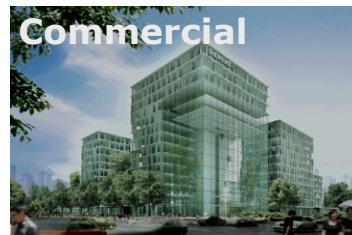
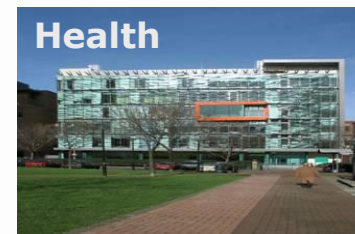


... one integrated global business

## Infrastructure



## Construction



## Other Industries



# Turner & Townsend - Key Clients



- Presentation Objective – Demonstrate the Turner & Townsend way of delivering an integrated project risk analysis

- **We believe:**
  - Good tools and models are important
  - Good procedures are equally important
  - Knowledgeable staff are critical.
  - Quality results are difficult to achieve without all being in place.
- **Our model has been:**
  - Used by numerous energy companies
  - Used for onshore and offshore projects
  - Used in upstream and downstream sectors
  - Used on research and development projects
  - Responsible for the apparent favored option not being selected.

- **Qualitative Analysis**
  - Risk & Opportunity Matrix
  - Ongoing, live document managed during course of project
  - Typically deterministic in nature.
  - Rarely has probabilistics applied
- **Quantitative Schedule Risk Analysis**
  - Based on Level 2 deterministic schedule with 50 to 150 activities
  - Prepared at specific points (stage gates)
  - Monte Carlo sampling
- **Quantitative Cost Risk Analysis**
  - Based on deterministic cost estimate
  - Sufficient detail to model risk
  - Prepared at specific points (stage gates)
  - Monte Carlo sampling

- Combines opportunities and residual risk from qualitative analysis, quantitative schedule risk analysis results and quantitative cost risks into one analysis.
- Based on relationships between quantities, man-hours, unit costs and schedule durations for time sensitive costs.
- Utilizes correlations where appropriate
- Flexible. Can be customized to properly assess project specific risks.

- **Understand client corporate risk culture**
  - Companies have different attitudes towards risk
  - A risk that is acceptable to one client is unacceptable to another
  - Corporate attitude towards risks will affect the way an analysis is structured
- **Educate client to the risk analysis as appropriate.**
- **Review project documentation**
  - Statement of Requirements
  - Scope of work
  - Execution plan
  - Contracting / Procurement plan
  - Risk / Opportunity Matrix
  - Project Schedule
  - Project Estimate

- Review Qualitative analysis - Select items that have medium to very high probability of occurring and medium to very high schedule / cost impact.
- Conduct Quantitative Schedule Risk Analysis
  1. Set up schedule with 50 – 150 activities
  2. No open ends
  3. Minimal constraints (no start on / finish on constraints)
  4. Include schedule related discrete risk items from Qualitative Analysis.
  5. Conduct risk workshop with appropriate project team members
  6. Run analysis and review results.

- **Prepare cost risk analysis**
  1. Set up risk model to sufficient level of detail to model risk
  2. Enter deterministic cost and validate costs match cost estimate.
  3. Import schedule risk results from quantitative schedule analysis
  4. Enter identified discrete opportunities and risks from risk and opportunity matrix
  5. Conduct cost risk workshop with appropriate project team members to establish risk ranges
  6. Review discrete risk items for inclusion elsewhere in analysis
  7. Run analysis, review results, recycle as required
  8. Present analysis results.