

# TDSIC Technical Conference

December 2, 2015



# Agenda

- Overview of TDSIC
- Definitions
  - Plan
  - Eligible Improvements
  - Project/Program
  - Best Estimate
  - Updates
- Impact of TDSIC on Small Gas Companies
- Addressing the Court of Appeals' Concerns





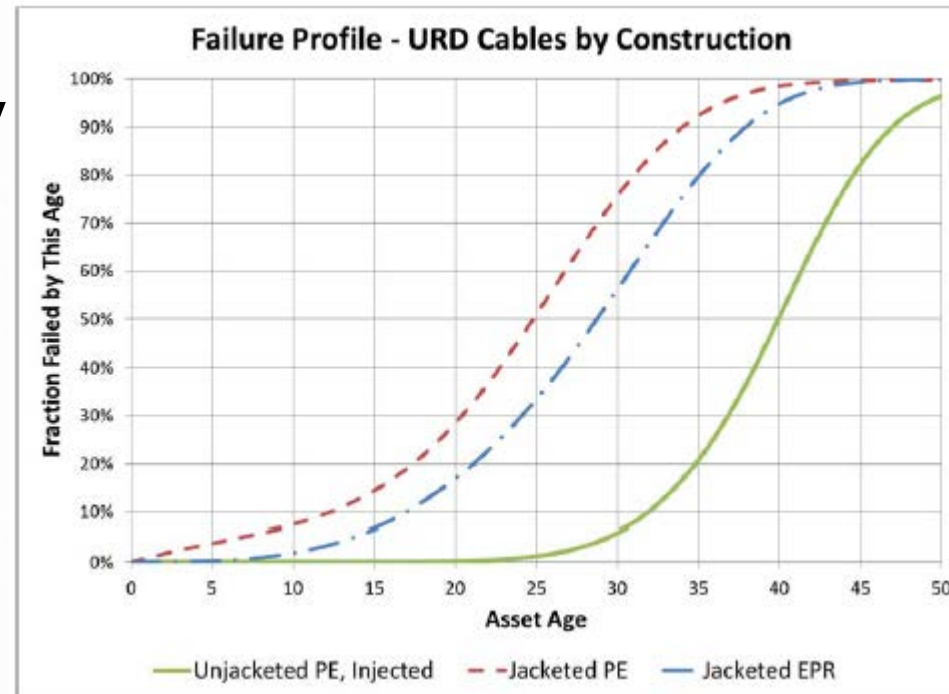
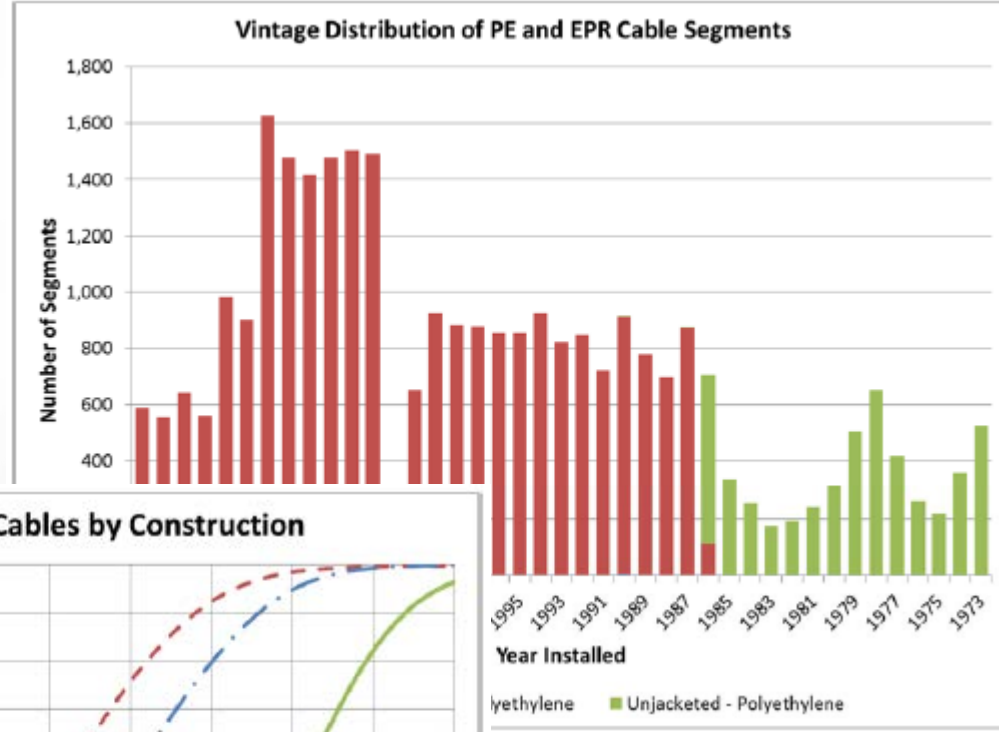
# OVERVIEW

# Aging Infrastructure

- Energy delivery grid experienced a growth phase in the 1960s and 1970s
- Many energy delivery assets are reaching or exceeding the end of their useful lives
- Aging assets may cause asset failure rates to increase, which threatens reliability
- Replacements and modernizations are needed to meet customer reliability expectations
- Safety implications increase with prolonging asset replacements well beyond engineered design

# Current State – URD Example

- Underground Residential Distribution (URD) installations began in the 1970s
- Many of these assets are now reaching the end or are past their expected design lives
- As these assets continue to age, asset failure rates increase, threatening reliability
- Historically, capital investment in replacements has generally been reactive-based
- As these facilities continue to age, systematic replacements are needed to meet customer reliability expectations



# Senate Enrolled Act 560 (2013)

- Legislature establishes state policy regarding aging energy infrastructure (similar to policies in other states)
- Encourages Indiana utilities to submit seven-year plans for eligible transmission, distribution, and storage system improvements
- Plan must include:
  1. “Best estimate” of the cost of the improvements in the Plan.
  2. Showing that public convenience and necessity requires the improvements.
  3. Showing that the estimated costs of the improvements are justified by incremental benefits attributable to the Plan.

# Improvement Strategy

- Replace and modernize the energy delivery system focused on:
  - Safety
  - Reliability
  - System Modernization
  - Economic Development
- 7-Year Plan is comprised of General and Specific Projects
  - General: Inspection and targeted mitigation programs systematically deployed throughout the Plan period (e.g. pole inspection and replacement)
  - Specific: Unique asset investment at a known location (e.g. new substation or regulator station)
- Balanced and systematic approach to accomplishing state policy goals

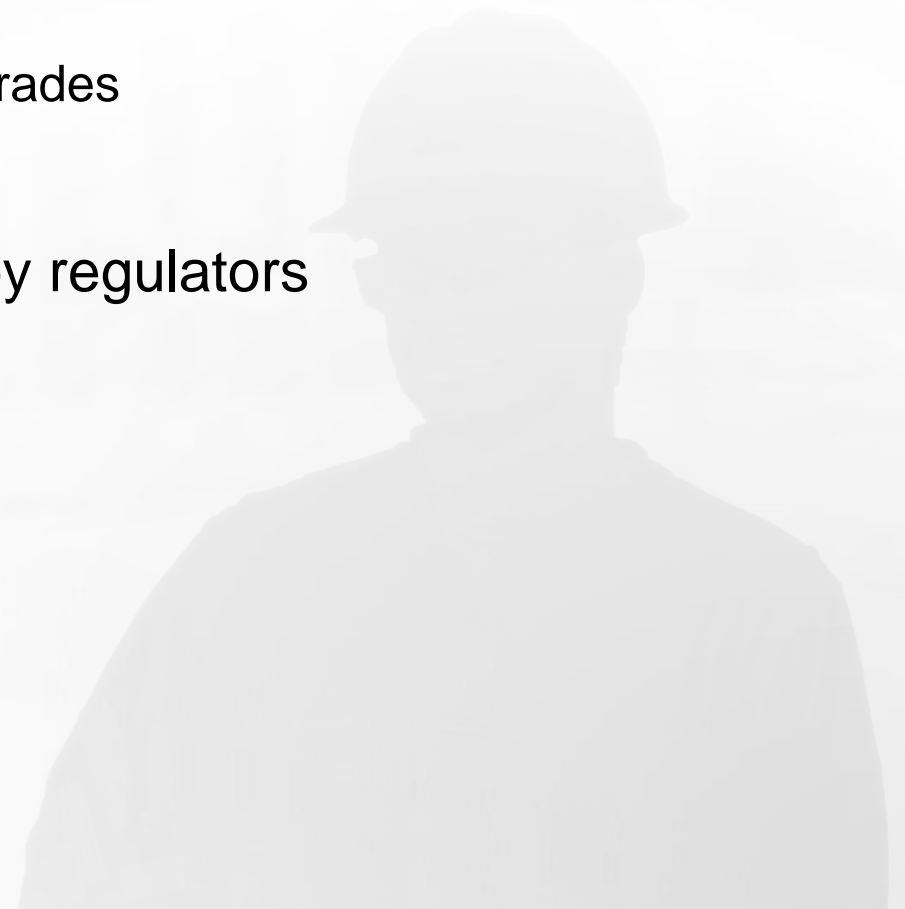


# DEFINITIONS



# A Plan...

- Comprises a set of actions thoughtfully prepared and able to achieve beneficial results
  - Preparing to serve the future needs of our customers
  - Safely maintain operations in an evolving industry
  - Focusing on system needs, improvements and upgrades
  - Provides for adjustments; the future is not certain
- Contains clear steps and direction reviewable by regulators
  - Sufficient detail for all years included in the Plan
  - Description of criteria for selecting investments
  - Flexibility to adjust to changing circumstances
    - Identifies the need
    - What is to be accomplished
    - Time to complete projects
    - Resources
    - Estimated costs



# A Plan...

- Needs to be flexible (as the Commission, OUCC, and Court have acknowledged)
  - Risk modeling and system changes may require timely plan changes to address reliability and emergent issues
- Needs to be “reasonable” and reflect good utility practices
- Should be updated as needed with each TDSIC tracker filing to stay current and to be effective, just like other plans
  - Restoration plans
  - Cyber security plans
  - Maintenance plans



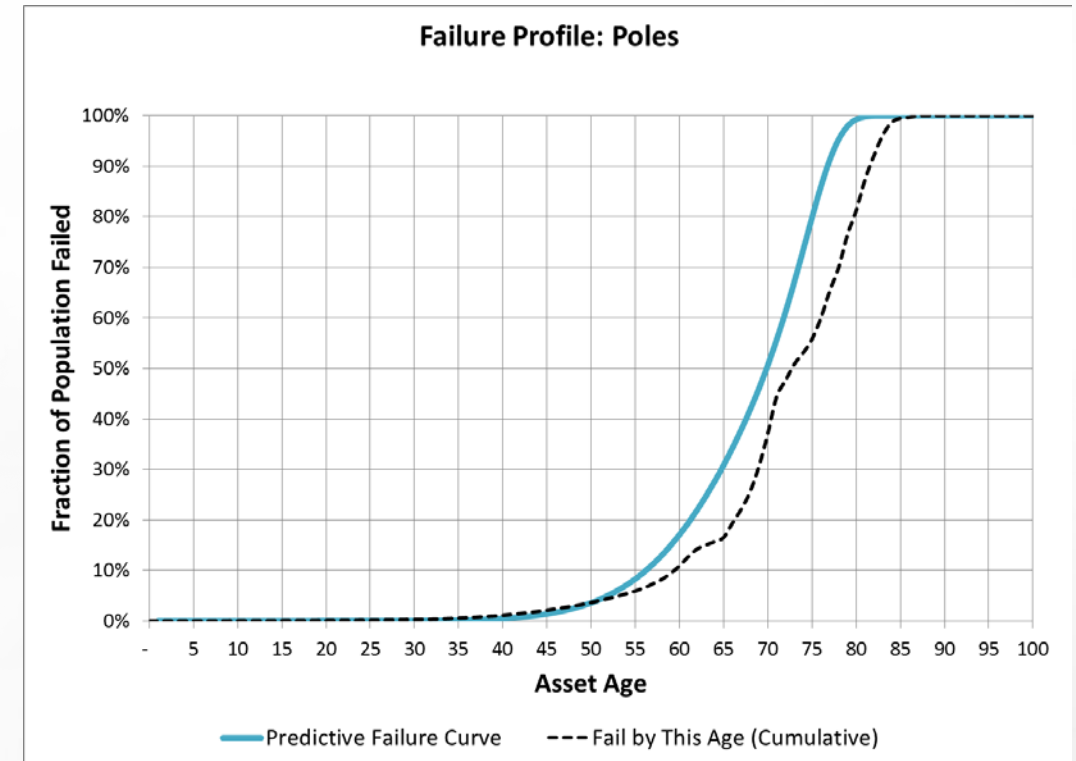
## ELIGIBLE IMPROVEMENTS

# Eligible Improvements

- A Plan designates eligible improvements
  - Transmission, distribution and storage systems projects per IC 8-1-39-2
- An investment in areas of safety, reliability, modernization and economic development
  - Major projects
    - Example - New technology for system monitoring
  - Replacement projects
    - Example - Cable or pipe replacement projects
  - Rebuilding projects
    - Example - Deteriorating poles
  - Upgrades
    - Example - Substation circuit breakers or remote control valve operators
  - Other
    - Example – Reliability enhancements
- Provides an incremental benefit to customers

# Identify Equipment with Greater Risk of Failure

- Review the transmission and distribution asset base for high risk items
- Model failure predictions in future years
- Examples
  - Underground Residential Cable (URD)
  - Wood Poles
  - Transmission and Distribution Structures
  - Substation Transformers and Breakers
  - Protective Relay Systems
  - Substation Communications and System Control and Data Acquisition (SCADA)



# Using Technology to Improve Customer Reliability



- **Reclosers**
  - Protect distribution backbone and minimize impact of outage areas
  - Improve SAIFI and SAIDI
  - Reduce momentary operations
- **Substation Transformer Monitoring**
  - Real time asset health
- **Capacitor Controls**
  - Improve power quality
  - Lower distribution losses
- **Advanced Metering Infrastructure**
  - Power quality monitoring
  - Outage notifications and improve storm restoration efficiency
- **Substation Tap Changer Controls**
  - Reduce load tap changer operations
  - Improve voltage control
  - Variable for conservation voltage reduction (CVR) for demand response and energy efficiency
- **Microprocessor Relays**
  - Monitoring of relay and equipment health
  - Fault location information
- **Substation Security**
- **System Control and Data Acquisition**
  - Expanding items for control and monitoring





**PROJECT/PROGRAM**

# Project/Program

- Some projects are asset specific and can be identified with specificity
- Groups of projects (or programs) that meet the other requirements in the statute (*i.e.*, are transmission, distribution and storage system improvements) also qualify as projects, and are vital to reliability of the T&D system.
  - Examples: A pole replacement program or gas service line replacements
  - A planned piece of work with a specific purpose
  - Estimates are based on historical data and unit costs
  - Work plans can include regions where work will be completed
  - Number of planned assets to be replaced based on historical practice
  - Actual number of asset replacements will depend on inspection and need at the time the work is performed
  - Utility can demonstrate why the group of projects or program is reasonable





# BEST ESTIMATE

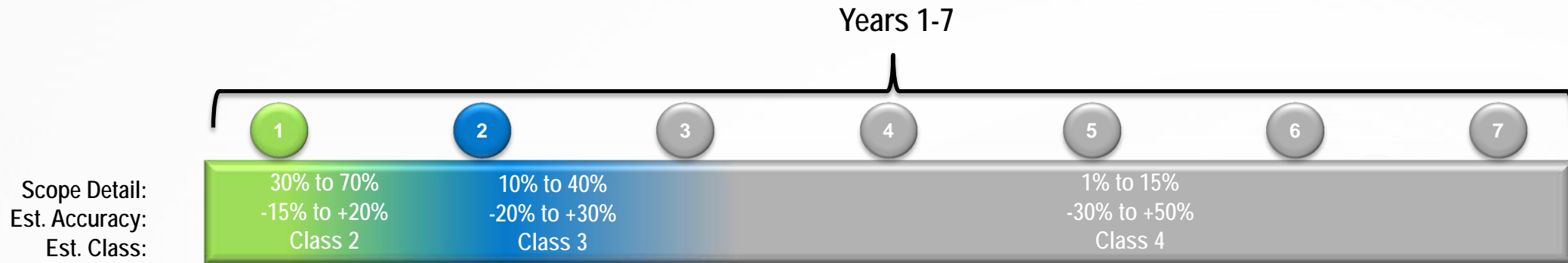
# Best Estimate

- “Best estimate” is dependent on the timing and nature of the project:
  - Near-term projects will have more defined “best estimates” than projects in the out-years; *i.e.*, year 1 best estimate has detailed engineering; year 7 does not
  - The “best estimate” for an inspection-based project will be different than the “best estimate” for an asset-based project
  - TDSIC statute provides for updates, which allows estimates to evolve as the plan progresses.
- Utilities may have different cost estimating processes and standards
- All projects and programs have estimates that provide an approximation of the total cost of the seven-year plan

# Best Estimate

- Balance the need to have a reasonable plan in place from the beginning with the flexibility to address future projects as the plan is implemented
- Purpose of providing best estimate:
  - Provides overall cost expectation for plan
  - Allows utility to effectively manage the plan and its cost
- Level of required detail should be balanced against cost and purpose; *i.e.*, detailed engineering performed today on a year 3-7 project would need significant re-work the year prior to its construction (not efficient)

# Example of Duke Energy Indiana's Cost Estimating Approach – based on AACE\* Standards



	Select	Initiate	Commit	Build	
Class of Cost Estimate	Class 5	Class 4	Class 3	Class 2	Class 1
% Design Complete (Level of Scope Definition)	0% to 2%	1% to 15%	10% to 40%	30% to 70%	50% to 100%
Typical Cost Estimate Methodology	Capacity Factored, Parametric Models, Judgment, or Analogy	Equipment Factored or Parametric Models	Semi-Detailed Unit Costs with Assembly Level Line Items	Detailed Unit Cost with Forced Detail Takeoff	Detailed Unit Cost with Detailed Take-off
Expected Range Boundaries (Variation in Estimate to Compete - \$)	H: +30% to +100%	H: +20% to +50%	H: +10% to +30%	H: +5% to +20%	H: +3% to +15%
	L: -20% to -50%	L: -15% to -30%	L: -10% to -20%	L: -5% to -15%	L: -3% to -10%

\*Association for Advancement of Cost Estimating International

# Cost Contingency & Risk Management in Project Estimates

- AACE International, the Association for the Advancement of Cost Engineering, has defined contingency as:

**An amount added to an estimate to allow for items, conditions, or events for which the state, occurrence, or effect is uncertain and that experience shows will likely result, in aggregate, in additional costs. Typically estimated using statistical analysis or judgment based on past asset or project experience.**

**Some of the items, conditions, or events for which the state, occurrence, and/or effect is uncertain include, but are not limited to, planning and estimating errors and omissions, minor price fluctuations (other than general escalation), design developments and changes within the scope, and variations in market and environmental conditions. Contingency is generally included in most estimates, and is expected to be expended.**

# Cost Contingency & Risk Management in Project Estimates

- Given the long-term nature of the TDSIC seven-year plan and the attendant risk, contingency is appropriate.
- As risks occur on a project, and money is needed to pay for them, the contingency can be transferred to the appropriate projects that need it.
- Utility will monitor the transfer and its reasons
- In risk management, risks are continually reassessed during the course of a project, as are the needs for cost contingency.
- Contingency amounts may be updated as the plan progresses



# UPDATES

# Statutory Support for Updates

- Section 9(a) states:

“The public utility shall update the public utility's seven(7) year plan under subdivision (2) with each petition the public utility files under this section.”

- The update may include approval of a targeted economic development project, which indicates the Legislature intended for the update to do more than simply update improvements already in the plan.



# Updates to the Plan

- A utility is required to update the plan with each petition
  - Conveying actual costs incurred on projects completed or in-progress
  - Conveying changes to the plan
- There are several types of updates, but they can generally be categorized into Project Updates or Cost Updates
- While much of the Plan can be executed as originally outlined, some system elements change over time. Prudent management requires flexibility in the Plan to address change.
  - Updated estimates
  - Updated actual costs
  - Updates to projects, including addition, acceleration and removal

# Updates

- Utility systems are dynamic and impacted by the ever changing environment around it.
  - System demands change as a result of customer requirements - additions, removals, load changes, equipment requirements
  - System configurations change as a result of installation of new assets, replacement of existing assets, reconfiguration of systems
  - Operational issues are identified – leaks, faults, exposures, excavation damages, aged equipment
  - External influences impact assets – public improvements
  - New technologies emerge – smart grid, AMI, remote control valves, relays, in-line inspection tools
  - Changes in regulatory requirements

# Updates

- Existing projects within the plan are reviewed to assess whether the project scope, design, timing and cost estimate require updating
  - Project scope may be updated to reflect current system configuration, operating conditions, environmental constraints, and other external influences
  - Designs may be updated to reflect new standards, technology, route constraints, and third party requirements
  - A project may be accelerated or delayed to reflect updated risk modeling, re-prioritization, project bundling, or as a result of third party requirements
  - Cost estimates may be updated to reflect updated scope, design, material and labor costs, new technology, or new requirements
- New projects emerge that are needed to ensure system safety and reliability

# Emergent Work

- Handling emergent work is an appropriate utility practice to address certain operational issues and customer demands that evolve during the seven-year plan
- On-going plan updates and reprioritization are appropriate to deal with emergent work
- History provides a basis for expected emergent work
- Budgets will reflect that some amount of emergent work is going to occur

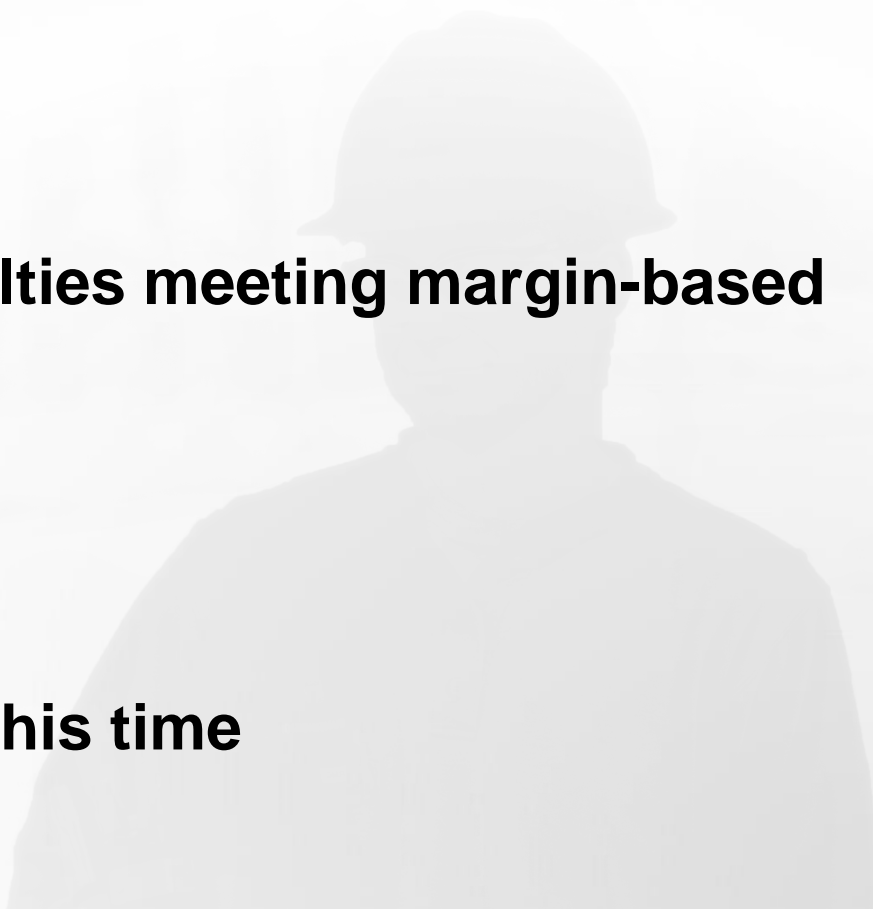
# Conclusions

- The Commission is clearly capable of reviewing Plan updates because of its considerable experience in reviewing modifications to environmental compliance projects.
- It is reasonable to allow a utility to make necessary and appropriate updates to the eligible TDSIC project to meet changing operating conditions.



# IMPACT OF TDSIC ON SMALL GAS COMPANIES

# Small Gas LDC Early Perceptions of TDSIC

- **Is the process cost prohibitive?**
  - **Personnel**
  - **Rural areas served now present difficulties meeting margin-based service extensions**
  - **OUCC discussions**
  - **Only a few small LDCs considering at this time**
- 

# Large vs. Small Benefits and Challenges

## Benefits

- **Limited number of projects**
  - **Predominantly rural economic development**
  - **Familiarity with each project**

## Challenges

- **Estimated cost determination**
  - **Lack of computer modeling capabilities**
  - **Limited amount of dedicated resources**



# Determination of Costs

- **Construction and operations personnel**
- **Component based**





# ADDRESSING THE COURT OF APPEALS' CONCERNS

# Key Findings Regarding Plan Sufficiency And Updates

"[T]he plan provided to the Commission simply did not contain enough detail for the Commission to determine whether NIPSCO's plan for years two through seven was 'reasonable' or to determine a 'best estimate of the cost' of the improvements."

"We acknowledge the arguments on appeal that a utility needs some flexibility to deal with changing conditions. . . . We believe that the legislature anticipated the necessity of flexibility when it enacted the updating process of Indiana Code Section 8-1-39-9."

"We conclude that the Commission improperly approved NIPSCO's seven-year plan under the TDSIC statute because it lacked detail regarding the proposed projects for years two through seven."

# Court of Appeals TDSIC Decision

## What the Court decided:

- Total annual spending for major project categories is not sufficiently detailed to meet statutory plan requirements.
- Flexibility is contemplated by the statute, but the utility must still provide an initial seven-year plan that is sufficiently detailed for all seven years, such that the Commission can determine whether the plan as a whole is reasonable and the best estimate of the plan's costs.

## What the Court did not decide:

- Precisely what type or level of detail must be included in the plan.
- That every project or program that may ultimately be part of the utility's seven-year plan must be identified initially.
- That changes in timing, scope, or project/program identification cannot be addressed through the update process.
- What method(s) of project cost estimating a utility must use.

# Balancing Act

- Utilities need to provide sufficient information for Commission to make an informed decision
- Utilities need flexibility to deal with changing conditions
  - Moving projects up or back in the schedule
  - Removing projects that no longer meet risk parameters
  - Adding projects that now meet risk parameters
  - Allowing for programs or project groups
- Statute recognizes the need for a process to update a plan.

# Going Forward

- A Plan should include sufficient detail; more than simply categories of spending
- “Best estimate” should be consistent with engineering standards, with more design details required once the year of the work is closer
- Improvements should be identified in a Plan, but may not need to identify assets with specificity
- Tracker filings provide a mechanism to update a Plan
- The reasonableness of estimates must be supported in a filing



## QUESTIONS AND DISCUSSION