Deloitte.

City of Denton - Denton Municipal Electric ("DME")

An assessment of DME's energy and risk management program and proposed FY17 benchmark

December 11 – 12, 2017

City of Denton – DME Energy Management Organization Risk Assessment & FY17 Benchmark Analysis

We are pleased to provide the attached presentation with respect to the risk assessment and FY 17 benchmark analysis services performed in accordance with our statement of work dated October 10, 2017 by Deloitte & Touche LLP, as requested by the City of Denton ("the Owner").

Our services included advice and recommendations, but all decisions in connection with the implementation of such advice and recommendations shall be the responsibility of, and made by, the Owner.

Our services and deliverables are solely for the Owner's benefit, and are not intended to be relied upon by any person or entity other than the Owner. The Owner should not disclose the services or deliverables, or refer to the services or deliverables, except as specifically set forth in the statement of work.

Our services were performed in accordance with the *Statement on Standards for Consulting Services* issued by the American Institute of Certified Public Accountants (AICPA) and did not constitute an engagement to provide audit, compilation, review, or attestation services as described in the pronouncements on professional standards issued by the AICPA, the Public Company Accounting Oversight Board, or other regulatory body and, therefore, we did not express an opinion or any other form of assurance with respect to our services.

We did not provide any legal advice regarding our services, nor did we provide any assurance regarding the outcome of any future audit or regulatory examination or other regulatory action. The responsibility for all legal issues with respect to these matters, such as reviewing all deliverable[s] and work product[s] for any legal implications to the Owner, will be the Owner's. It is further understood that management is responsible for, among other things, identifying and ensuring compliance with laws and regulations applicable to the Owner's activities.

We look forward to continuing to work with you on this engagement. Please do not hesitate to contact Steve Engler directly at 973-602-5206 or sengler@deloitte.com if you need additional information or clarification about any aspect of this presentation.

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What we were asked to do

- Identify risks that existed before the creation of the EMO and what risks may exist for DME since go-live
- Based on the risks identified, assess DME's risk management program and make recommendations for improvement
- Analyze different approaches for establishing the FY17 benchmark and make recommendations for how to proceed

Risk Identification

What is Risk?

Risk

- Possibility of suffering adverse outcomes such as higher rates, lower revenues, or higher costs

Uncertainty

- Uncertainty refers to unknown events where the probability of occurrence is difficult to quantify (i.e. availability of renewable supply)

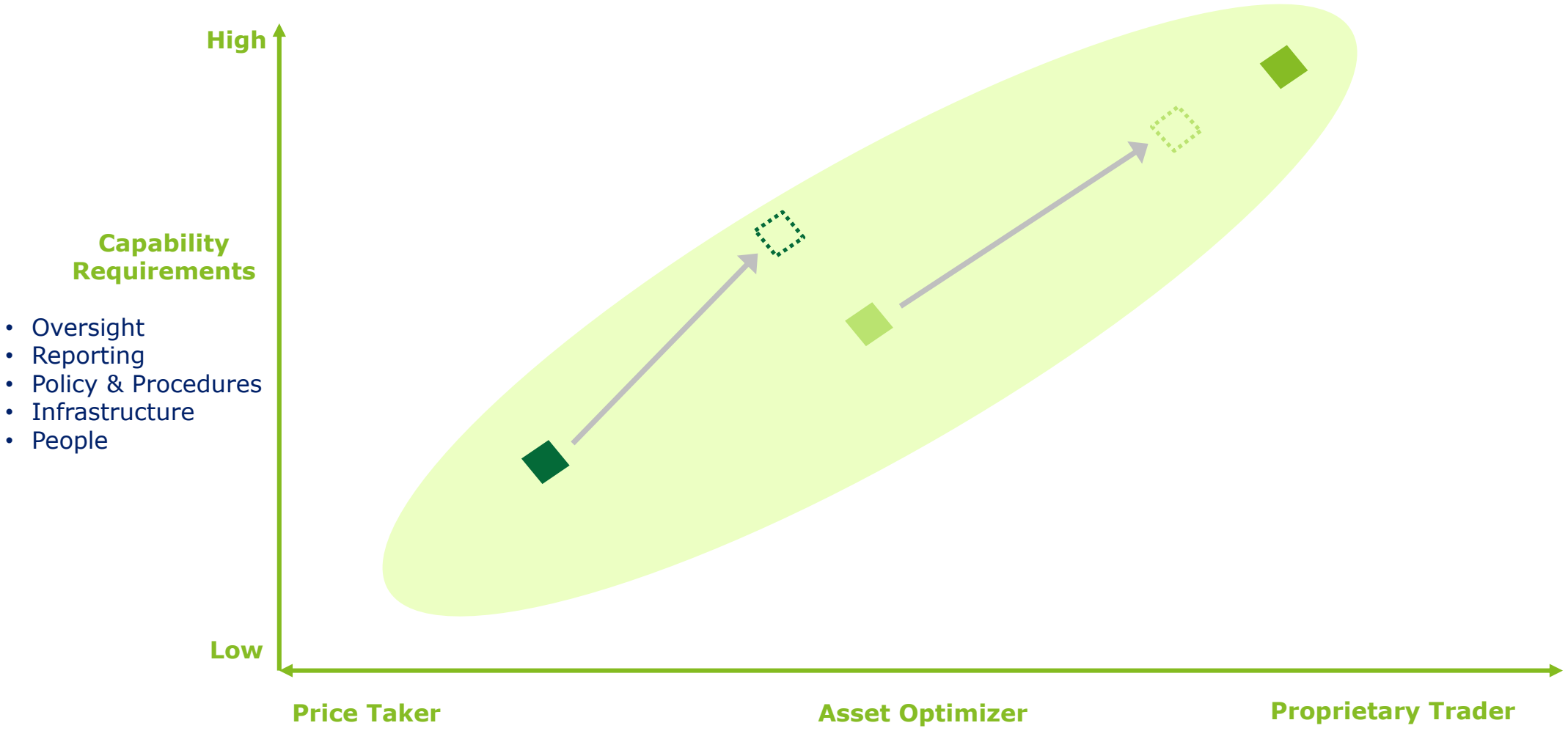
Risk v. Uncertainty

- Risk and Uncertainty both talk about expectations in future, but risk can be mitigated; on the other hand, uncertainty will always exist

Risk v. Opportunity

- Managing a risk does not necessarily mean foregoing an opportunity

As companies move left on the value chain, the shift in strategy requires different capabilities



Key Risk Areas

Understanding Key Risk Areas

	Actively managed prior to go-live?	Responsible party prior to Go-Live	Current State
Market Risk			
Liquidity Risk	Yes	DME	DME
Commodity Price Risk	No		DME
Congestion Risk	Yes	Third Party	DME
Basis Risk	Yes	Third Party	DME
Load Serving / Following Risk	Yes	Third Party	DME
Credit Risk			
Financial Counterparty Default Risk	Yes	DME	DME
Physical Delivery Risk	Yes	Third Party	DME
Operations Risk			
Systems Risk	Yes	Third Party	DME
Transaction Processing Risk	Yes	Third Party	DME
Compliance Risk	Yes	Third Party	DME
Regulatory Compliance Risk	Yes	DME	DME
Model Risk	Yes	Third Party	DME
Asset/Performance Risk	Yes	DME	DME
Renewable Variability Risk	No		DME
Gibbons Creek Autonomy Risk	No		

DME Risk Assessment

Risk assessment objectives and scope

Objectives

Deloitte & Touche LLP ("D&T") was engaged to:

- Understand Denton Municipal Electric's ("DME") existing energy and risk management program
- Collect and evaluate data, develop findings, and make recommendations to help DME understand areas for development given the utility's energy operations and planned renewable portfolio; and
- Prepare an executive summary of observations and recommendations for DME's consideration.

Scope & Approach

Scope

- Governance, People, Process, Technology
- Risk policy and program documentation
- Utility operations
- Transacting activities
- Planned renewable additions
- Middle and back office
- Risk reporting

Approach

- Gain understanding of energy and risk management program and systems through documentation review and interviews with identified DME personnel;
- Discuss future requirements for the energy and risk management program
- Discuss findings and recommendations with DME, City Council and the Public Utility Board ("PUB")

What is the Capability Maturity Model ("CMM") and how is it used?

Categories	Developing	Prevalent	Leading
	Maturity Stages of Trading and Risk Management Capabilities		
Governance 	• Ad hoc • Limited linkage between risk and trading • Oversight is decentralized	• Common framework and governance • Consistent risk oversight meetings and reporting	• Integrated risk management activities across trading time horizons (forward to real time)
Process 	• Trading requirements and activities are undefined • Process are informal or not defined	• Process, trading controls and risk reporting is defined and documented • Risk metrics are defined and appropriate	• Hedge strategy and risk tolerances are continually assessed • Risk mitigation plans and escalation procedures exist
People 	• Depends primarily on individual heroics, capabilities, and verbal wisdom	• Regular communication and reporting with key stakeholders • Redundant and trained resources	• Risk management training is regularly updated • Appropriate balance of resources from Front to Back office
Technology 	• Reporting and risk measurement is manual, spreadsheet based and error-prone	• Automation is integrated to processes and reports	• Systemic monitoring, measuring, and reporting for risk metrics

Summary of risk assessment results

Maturity Stages of Trading and Risk Management Capabilities

	Developing	Prevalent	Leading	Recommendations	Select Risks
Governance	C Current State	F Recommended State		• High Priority: 12 • Medium Priority: 10 • Low Priority: 2	• Operational Compliance Risk • Market Risk • Regulatory Compliance
Process	C	F		• High Priority: 2 • Medium Priority: 8 • Low Priority: 15	• Liquidity Risk • Commodity Price Risk • Model/System Risk • Physical Delivery Risk • Transaction Processing • Operational Compliance Risk
People	C	F		• High Priority: 1 • Medium Priority: 2 • Low Priority: 0	• Operations Compliance Risk
Technology	C	F		• High Priority: 1 • Medium Priority: 3 • Low Priority: 4	• Systems Risk • Transacting Processing Risk • Operational Compliance Risk • Market Risk • Credit Risk

High, medium and low priorities were determined based on D&T's understanding of common and leading industry practices and our view of the risk mitigation benefits of implementing the recommendation.

Select recommendations

The recommendations below represent those identified as high priority

Governance

- Review risk policy and governance hierarchy
- Update governance documentation
- Determine appropriate oversight meeting frequency
- Establish a single risk management committee ("RMC")
- Conduct regularly scheduled RMC meetings
- Update Appendix A of the ERMP (limits)
- Update Appendix E of the ERMP (approved products
- Design and document a financial hedge strategy
- Quantify DME's risk profile annually
- Define risk limits linked to objectives
- Reconcile DOA memorandum with the ERMP

Process

- Reconsider risk metrics and measurement methodologies
- Prepare a daily portfolio level risk report

Technology

- Proceed with identifying and implementing a new ETRM to meet DME's energy and risk management requirements

People

- Assess adequacy of staffing across the front, middle and back office

Engagement summary

- Based on D&T's review and assessment of DME's risk management capabilities, it is our observation that while DME is lacking certain risk infrastructure (e.g. a capable risk management system) to support DME's energy and risk management program, the organization is generally structured, staffed, and capable of managing the utility's risks

- With some enhancements to the technology infrastructure and a more consistent focus on reporting and communication, DME would be comparable to other similarly sized municipal utilities.

FY 17 Benchmark Analysis

FY 17 Benchmark Analysis

What benchmarks were considered?

Option 1 Day-ahead + 3.5 heat rate adder

- Use the day-ahead power market as a benchmark
- Add a risk premium and profit margin by using a 3.5 heat rate adder
- Advantage:
  - Simple to quantify and measure
- Disadvantage:
  - Consistently moves with the day-ahead market
  - Cost savings will always contain a premium relative to the market
  - The 3.5 heat rate adder is ambiguous and subjective

Option 2 9-30-XX Forward Curve

- Uses the forward curve on the last day of the prior fiscal year
- Does not add a premium/profit margin; simply price x volume
- Advantage:
  - Market-based and set's a clear target to beat
- Disadvantage:
  - Does not consider DME's objectives, risk or the impact of uncertainty

FY17 Benchmark Analysis

Benchmark Impact

Method	Source	Category	Costs
Benchmark Costs	D&T Calculation	Option 1 day-ahead + 3.5	$ 36,868,926
	D&T Calculation	Option 1 without heat rate adder	$ 28,952,360
	D&T Calculation	Option 2 9-30-2016 Forward Curve	$ 30,618,559
EMO Costs	Provided by EMO	EMO Costs	$ 26,537,952
Savings	D&T Calculation	Option 1 day-ahead + 3.5	$ 10,330,974
	D&T Calculation	Option 1 without heat rate adder	$ 2,414,407
	D&T Calculation	Option 2 9-30-2016 Forward Curve	$ 4,080,606

Changing the focus from cost savings to risk mitigation and value-added

- What's the purpose of the cost savings calculation?

- If you assume that it's to assess the performance and value of the DME's energy and risk management function, it should be focused on desired outcomes and how well DME achieves the outcomes

- Outcomes should be mapped to objectives or a quantitative statement of what DME is trying to achieve

- What would be considered good outcomes for the DME and its customers?
  - Stable electricity rates when prices rise?
  - Competitive and lower rates when prices fall?

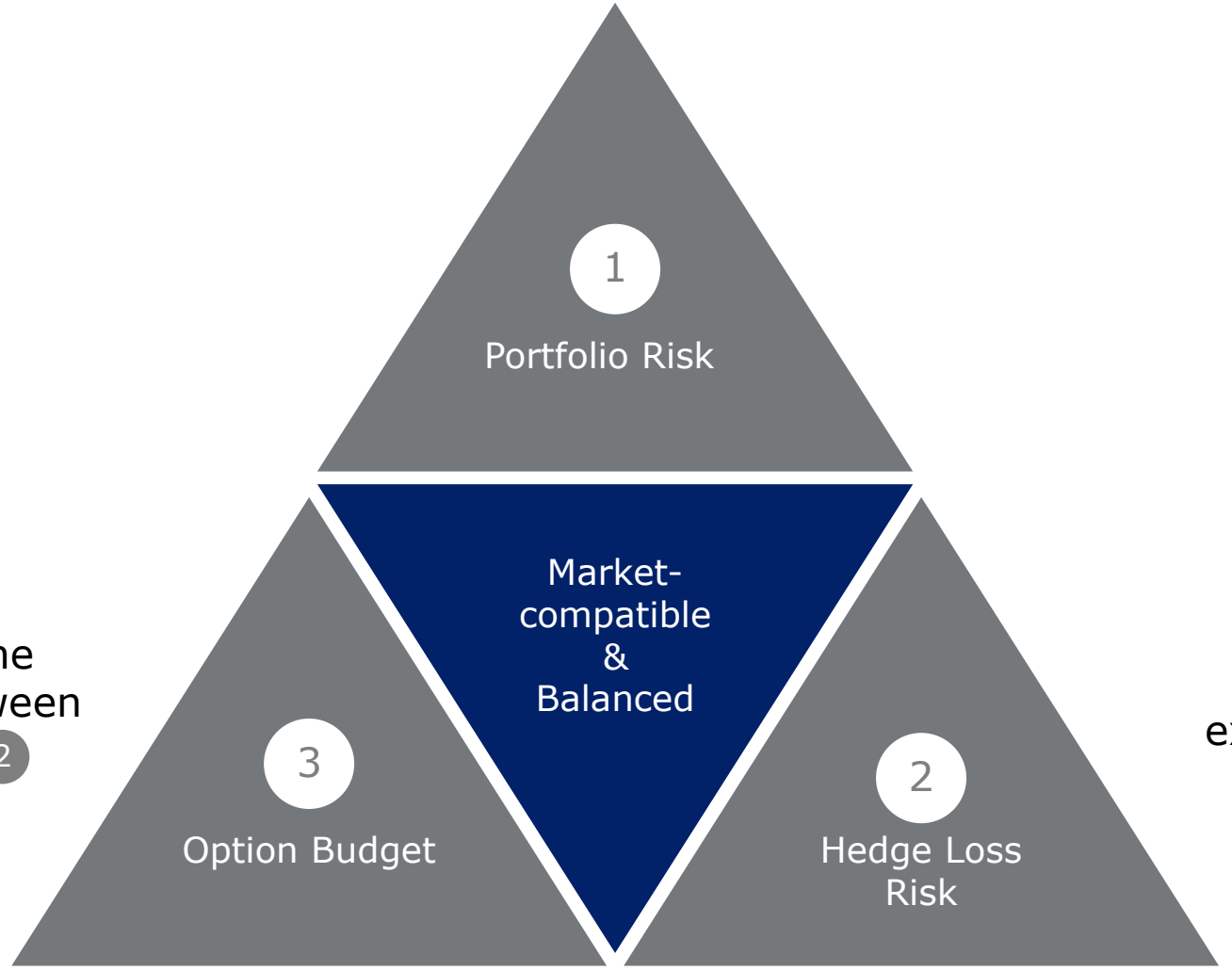
- How do you accomplish this?
  1. By having a set of paired and market-compatible objectives
  2. By having a hedge strategy and risk limits that have been demonstrated to achieve those objectives
  3. By having the risk infrastructure (data capture, risk quantification, and monitoring) in place to know when to act

- #1 and #2 form the basis for the benchmark and the assessment of performance and value

Objective-Setting

Specific, Quantifiable, and Actionable

Manage the customer's rate risk



Manage the tension between 1 and 2

Manage the executed hedges

Clearly defined, quantifiable, and market compatible objectives allow for simple measurement of performance and effectiveness

#1 Rate Risk Objective

Manage the Energy Cost Adjustment so the cost to serve customers do not increase by more than X% at a 97.5% confidence interval

#2 Hedge loss objective

Manage fixed price transactions so that customer rates are not more than X% above market-based rates at a 97.5% confidence interval.

#3 Option budget

Set aside $X in an options budget to manage the tension between #1 and #2 so that hedge strategy is market-compatible.

Recommended Next Steps

Recommended Next Steps

Based on D&T's analysis and assessment of DME and the EMO, including the risk assessment and benchmark, we recommend the following next step in order to complete the process of assessing and addressing the risks inherent in DME's mission to provide stable and competitive electric rates to it's customers:

- ***Risk profile and hedge strategy assessment:*** Consider quantifying the risk of DME's evolving portfolio of resources, obligation to provide power to customers, and the impact of supply uncertainty on end-user electricity rates. This should include the evaluation of different forward, financial hedge strategies designed to accomplish DME's mission to provide stable and competitive electric rates.

Appendix

Key elements of the Capability Maturity Model

Within each of the capability areas, there are numerous key elements that focus on specific aspects of an energy and risk management program.

Governance:

- Risk Governance Hierarchy
- BOD Oversight
- Risk Management Committee
- Segregation of Duties ("SOD")
- RMP Policy and Administration
- Policy Updates
- Objective-setting and Hedge Strategy Design
- Risk Profiling and Hedge Strategy Analysis
- Risk Appetite
- Risk Limits
- Book Structure
- Delegation of Authority ("DOA")

People:

- Knowledge Sharing
- Roles and Responsibilities
- Adequacy of Resources
- Risk Department Structure

Process:

- Communication
- Master Agreements
- New Products
- Tactical Meetings
- Trade Analysis and Comparison Against Limits
- Position Reporting
- Mark-to-Market Process
- Market Data Sourcing
- Limit Reporting and Monitoring
- Management Reporting
- At-Risk Measures
- Scenario Analyses
- Back testing Risk Measurements
- Actualization
- Settlement Discrepancies
- G/L Reconciliation - Realized and Unrealized P&L
- Links between hedge and exposure
- Controls Processes
- Credit Rating Methodology, Limit Setting, and Review
- Collateral Management

Technology:

- Visibility of All Risks / Commodities
- Deal Capture
- Review and Approval of Market Data Sourcing and Valuation Methodologies
- Planned Reporting
- Confirmations
- Transaction Completeness and Accuracy
- End of Day Processing