

## Background

VT DPS engaged Navigant Consulting, Inc. (Navigant) in October 2012 to assess administrative efficiency and business process metrics for two Vermont energy efficiency utilities, Efficiency Vermont and Burlington Electric Department (BED). Navigant submits this memo as the deliverable for the BED portion of task 2 of the project.

Under task 2, Navigant conducted meetings with key personnel from BED to review process identification, analysis and measurement activities performed for two of BED's critical business processes. These processes are Customer Incentive Check Production (Incentive Check Processing) process and Project Savings Data Entry into the DSM Tracking Database for Complex Projects (Project Data Entry) process. During the meetings, BED's Director of Energy Services explained the overall importance of these processes, described the process goals and objectives, and presented an overview of the activities performed to comply with the VT Public Service Board requirements. Following the meetings, Navigant held calls with BED and also reviewed process improvement related documents that BED made available.

## Executive Summary

Based on our assessment, Navigant concludes that BED's key business process improvement efforts meet the requirements outlined by VT Public Service Board's (PSB) Administrative Efficiency Quantifiable Performance Indicator milestone for September 30, 2012. Navigant's assessment addresses three critical areas based on our understanding of the VT PSB Order<sup>1</sup> and based on our experience with continuous process improvement activities:

**Key business process improvement approach** – BED is currently evaluating key business process improvement approaches that will be employed during the 2012-2014 performance period. To complete the requirements outlined by VT PSB, it was not necessary to select a key business process improvement approach.

**Critical business process selection** – BED prepared a detailed list of core energy efficiency services performed. Using this list, BED distilled the key processes required to perform each service. From its list of key business processes, BED selected the Incentive Check Processing process and the Project Data Entry process for the initial process improvement phase. Both processes are key business processes in the energy efficiency industry.

**Key process improvement activities** – BED performed the key business process improvement steps required by the VT PSB. For both processes, BED measured process performance once and used the results to determine process improvement target metrics. While not required for this milestone, BED will need to document its key business processes, develop and implement process improvements, and measure process performance on an ongoing basis.

Following our analysis, Navigant developed a set of recommendations that may be valuable to BED when further developing its key business process improvements.

## Introduction

Navigant reviewed the methodology BED used for developing, maintaining and updating key business processes. Based on our experience with continuous process improvement activities, we also developed recommendations that BED may consider to further improve its key business processes. We considered three areas in assessing BED's methodology:

1. Key business process improvement approach
2. Critical business process selection
  - a) Process identification method for key business processes
  - b) Process selection method for processes to be improved
3. Key process improvement activities
  - a) Determination of process improvement target metrics

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<sup>1</sup> See EEU-2010-06 Order Determining Electric Quantifiable Performance Indicators for Burlington Electric Department, Appendix B, QPI for Administrative Efficiency, available at <http://psb.vermont.gov/sites/psb/files/orders/2012/2012-1/OrderElectricQPISBEDAppendixB.pdf>

- b) Development of process improvements
- c) Documentation of key business processes
- d) Implementation of process improvements
- e) Measurement of process performance on ongoing basis
- f) Continuous key business process improvement

## Key Business Process Improvement Approach

### BED's Approach

BED is still evaluating key business process improvement approaches that will be employed during the 2012-14 performance period. Given the relatively small size of BED, a critical factor to a successful approach is that it is cost effective, fast to absorb and quick to apply. The approach must be hands-on and yield improvements quickly. At the same time, the approach must have a proven track record of producing credible process improvement outcomes.

### Assessment of BED's Approach

To complete the requirements outlined by VT PSB, BED was not required to select a key business process improvement approach. Navigant included this assessment criterion because a defined process improvement approach supports structure of the process improvement activities and helps to determine appropriate next steps.

### Recommendations

Navigant recommends that BED selects a key business process improvement approach to bring structure and focus to its key business process improvement efforts. We believe that the Lean process improvement approach would be beneficial for BED, because it is:

- Fast and easy to learn and apply,
- Concentrates resources in a short timeframe to identify quick, easy and intuitive improvements,
- Very effective to capture the "low hanging fruit" of process improvement activities,
- Provides structure and tools that, when performed correctly, will yield satisfying results, and
- Several of EVT's staff are trained in the Lean approach and may be able to help BED with specific questions.

While other simple process improvement approaches exist (for example PDCA<sup>2</sup>), most other approaches do not provide the same level of structure and tools as Lean, which makes Lean easier to apply to new practitioners. If desired, BED can facilitate the Lean approach in-house once BED's staff completed basic Lean training.

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<sup>2</sup> PDCA stands for Plan-Do-Check-Act. PDCA is an iterative four-step management method used for continuous improvement of processes and products. It is also known as the Deming cycle.

BED would likely benefit from training a small number of employees in Lean principles. Basic lean training is available in multiple formats, including books, electronic learning and classroom sessions. Various levels of Lean expertise certification are available from multiple sources, but certification is not required to practice process improvements<sup>3</sup>.

## Critical Business Process Selection

In this assessment area, Navigant assessed BED's activities around:

- a) Process identification method for key business processes, and
- b) Process selection method for processes to be improved.

### BED's Approach

BED's energy efficiency team, led by the Director of Energy Services, prepared a detailed list of core energy efficiency services performed. For each energy efficiency service, BED provided a brief explanation of its scope, key players involved in the service and key processes required to complete each service. The energy services identified by BED are:

- Residential Energy Services
  - Residential Existing Buildings
  - Residential New Construction
  - Efficient Products Program
- Commercial Energy Services
  - Business New Construction
  - Business Existing Facilities

BED identified key processes performed for each service performed. Some of the key processes identified overlap across services. Following is a list of eleven unique key processes performed by BED:

1. On-Site Visits or Plan Reviews
2. Analysis
3. Report Production
4. Inspections (Pre-Sheetrock, Blower Door, Preliminary Site, Final)
5. Project Data Entry
6. Incentive Check Processing
7. Continuous Commissioning (Cx) / Fault Detection and Diagnostics (FDD) Monitoring
8. Energy Federation Inc. (EFI) Data Uploads to Enter Savings Data in Savings Database
9. Technical Reference Manual (TRM) Measure Updates
10. Project Team Meetings
11. Savings Analysis

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<sup>3</sup> The American Society for Quality (ASQ) offers a full range of credible Lean training and resources at <http://asq.org/knowledge-center/lean/index.html>

Following the identification of BED's key business processes, BED's energy efficiency team, again led by the Director of Energy Services, selected two processes for the initial business process improvements. Selection criteria for the two key business processes were:

- Amount of hours expended on the process within the BED organization,
- Suitability of the process as a first time process improvement project, and
- Importance of the process in delivering value to the customer.

Based on these selection criteria, the team selected the Incentive Check Processing process and the Project Data Entry process for the initial process improvement phase. Both processes are key business processes in the energy efficiency industry.

### **Assessment of BED's Approach**

BED took a practical approach to identifying its core processes. By starting from its list of energy services provided, BED ensured that no critical outward facing processes would be omitted. Furthermore, by identifying the processes required for each energy service, the team could easily determine which processes apply across services. This analysis provided the team with an important insight into picking the first two key business processes.

The two processes selected for the initial business process improvements are identified by important attributes of key business processes. The Incentive Check Processing process reaches ratepayers at various levels, consumes a lot of BED's time, and is a key factor for customer satisfaction and recurring program participation. The Project Data Entry process is critical for tracking overall energy efficiency program success and also consumes a considerable amount of BED's time.

### **Recommendations**

While BED clearly identified the majority of its key business processes by determining BED's outward facing processes, it may be beneficial to also consider major internal processes. Internal processes may require a lot of staff time and process improvements can yield large efficiency increases. Some internal processes that may be worthwhile considering are:

- Regulatory submission and reporting,
- Technical quality assurance,
- Key account management,
- Program development,
- Project management,
- Planning and budgeting,
- Metering (Forward Capacity Market (FCM) and individual project metering),
- Coordination and management of subcontractors,
- Marketing and external communications,
- Customer service (includes call center), and
- Internal communications.

Additionally, BED may be able to further streamline and strengthen the identification of its key business processes by engaging in conversations with peer organizations of comparable size and mission<sup>4</sup>. The conversation with peer organizations would focus around administrative efficiency activities undertaken by the peers to identify best practices for consideration by BED. Further, Navigant is currently working on a list of key energy efficiency business processes for BED to consider when structuring its key processes.

When selecting further processes for improvement, BED may want to add “process repetition” to its selection criteria. Processes that are repeated often are usually easier to improve upon. Further, even small process improvements can generate a large impact due to the multiplying effect of frequent repetition.

A further recommendation for future process improvement selection is to collect quantitative data for each selection criteria. Quantitative data adds facts to the decision and is useful when documenting the scoring detail for future use. By relying on quantitative information, the danger of applying a bias for certain processes is reduced.

## Key Process Improvement Activities

Under this assessment area, Navigant assessed BED’s activities around:

- a) Determination of process improvement target metrics,
- b) Development of process improvements,
- c) Documentation of key business processes,
- d) Implementation of process improvements,
- e) Measurement of process performance on ongoing basis, and
- f) Continuous key business process improvement.

### **BED’s Approach**

*Determination of process improvement target metrics* – The improvement target metrics identified by BED for both processes are lead time<sup>5</sup>, which puts the improvement focus on performing processes faster. The selected targets are summarized in Table 1 below. Determination of the target metrics goes hand-in-hand with the next step: development of process improvements.

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<sup>4</sup> Navigant suggests maintaining ongoing conversation with EVT while also seeking out comparable organizations through BED’s affiliation with the American Public Power Association (APPA).

<sup>5</sup> Lead time is the delay between the initiation and execution of a process. For example, the lead time between the placement of an order and delivery of a new car may be two months.

**Table 1: BED Initial Process Baseline and Improvement Target Metrics**

Process	Metric	Baseline	Improvement Target	Percent Improvement
<b>Incentive Check Processing</b>	Lead time	2-9 days	1.5-6.75 days	25%
<b>Project Data Entry</b>	Lead time	1-5 hours	0.5-3.75 hours	25-50%

*Development of process improvements* – The desired process improvement targets influence the process improvements that are required to achieve the targets. Hence, the targets and the improvements are closely intertwined and need to be reviewed in parallel. To align process improvement targets and process improvements, BED’s energy efficiency team discussed the existing process in detail and identified areas that will be targeted for improvement. No actual process improvements (process changes) have been identified to date. The VT PSB order did not require BED to develop process improvements by the 9/30/2012 deadline.

*Documentation of key business processes* – BED did not formally document the two key business processes. Given the relatively small size of BED’s energy efficiency team, the team determined that its key business processes are well internalized by all team members and formal documentation was not considered a necessity. The VT PSB order did not require BED to document its key business processes by the 9/30/2012 deadline.

*Implementation of process improvements* – After process improvements have been identified, these must be implemented, which requires planning and execution of the appropriate improvement activities. Because no process improvements have been identified to date, the BED team has not started process improvement implementation. The VT PSB order did not require BED to implement process improvements by the 9/30/2012 deadline.

*Measurement of process performance on ongoing basis* – To measure the impact of process improvements, process performance must be continuously monitored. At this point, BED has not implemented continuous process monitoring mechanisms. The VT PSB order did not require BED to implement process performance measurements by the 9/30/2012 deadline.

*Continuous key business process improvement* – To create and maintain momentum around process improvement activities, management buy-in and support of the improvement effort is critical. During interviews with Navigant, BED’s Director of Energy Services voiced his support for the key business improvement effort. He views the VT PSB order as the start of an ongoing continuous improvement effort that will benefit BED and its customers over the long term.

### **Assessment of BED’s Approach**

*Determination of process improvement target metrics* – BED has set challenging improvement target metrics for both processes. BED’s target improvements range from 25 to 50% improvement over the status quo. Improvements of this magnitude are possible when conducting formal process improvement efforts for the first time and plenty of “low hanging fruit” is left to pick. Nevertheless, BED will need to apply a strong focus to achieve and maintain improvements of this magnitude.

*Development of process improvements* – BED has not selected concrete process improvement activities, which was not a requirement of the VT PSB order. However, BED’s team discussed general areas to improve the two identified processes. It is important to identify concrete process improvement activities quickly following general discussions to establish momentum around the effort.

*Documentation of key business processes* – BED has not formally documented the two key business processes selected, which was not a requirement of the VT PSB order. However, Navigant believes that formal process documentation would help in identifying concrete process improvements. By creating an electronic process map, the future-state process map can easily be shared and future reviews and updates are easy to document<sup>6</sup>.

*Implementation of process improvements* – BED has not implemented any process improvements yet, which was not a requirement of the VT PSB order. Navigant believes that implementation of the process improvements should be performed quickly after the identification of process improvements to maintain momentum of the effort. BED should plan on a swift implementation once process improvements have been identified.

*Measurement of process performance on ongoing basis* – To understand the impact of process improvements, process performance should be measured on an ongoing basis and compared to the goals identified in the improvement target metrics. BED has measured initial lead time for both processes. However, no ongoing measurements are being taken, which was not a requirement of the VT PSB order.

*Continuous key business process improvement* – BED has not had sufficient time to define a complete continuous business process improvement methodology, which was not a requirement of the VT PSB order. Further, BED does not have a pressing need to implement a continuous business process improvement methodology at this time because all key business processes are undergoing their first round of improvements. The need for a continuous key business process improvement methodology will likely arise once all key business processes have been mapped and BED is looking to gain further efficiency from its key business processes.

## **Recommendations**

*Determination of process improvement target metrics* – Navigant believes that BED has set challenging improvement target metrics for the two selected processes. BED may find value in adding a metric that measures process error rates. Error rates, along with lead times, have large impacts on process quality. BED would benefit from defining concrete process improvement activities that create a roadmap for target metric achievement.

*Development of process improvements* – BED’s process improvement development has not started yet. BED may benefit from following EVT’s lead of approaching process improvements with a value stream mapping event. Value stream mapping is an effective way for identifying solid process improvements while at the same time training the team in a process improvement methodology. It is

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<sup>6</sup> An example of a process mapping application includes Microsoft Visio. Basic process flowcharts can also be generated in Microsoft PowerPoint.

an ad-hoc, event based approach to process improvements that measures current process performance and uses the results to plan improvements. With its focus on the big, overall process picture rather than very detailed sub-processes, value stream mapping provides a good starting point for process improvement. Furthermore, the outcome of the value stream mapping exercise generates a list of process improvements to target and a future state process map. The BED team would also receive training in process improvement.

***Documentation of key business processes*** – In conjunction with our recommendation to consider value stream mapping to identify process improvements, Navigant recommends documenting the future-state key business processes in electronic format for future reference. Placing a poster of the future-state process map at a high visibility location in the office boosts team morale and signifies the importance of the improvement effort. Process maps serve multiple purposes in an organization. Apart from identifying process improvements, process maps also help to clearly align work responsibilities and are an effective training tool for employees new to the team.

***Implementation of process improvements*** – Once BED identifies key business process improvements, it would likely benefit from a detailed implementation plan. The plan should assign an owner to each process improvement identified, along with a timeline by when improvements have to be completed. Each process improvement owner should produce a periodic status report that tracks implementation towards the identified process improvements. To maintain momentum on the effort, BED should ensure that each process improvement owner follows his or her assigned tasks through to completion. BED would likely benefit from preparing status reports to track implementation towards the requested process improvements. Status reports would be generated on a periodic basis (monthly or quarterly) and reviewed by the Director of Energy Services to determine if progress is sufficient.

***Measurement of process performance on ongoing basis*** – In the short term, BED should focus on data measurement and reporting for the two processes identified. This is important because process performance information is vital when implementing process improvements. To track the impact of performance improvement implementation, trended process performance data should be a section in the status reports. For example, process lead times and error rates could be measured on a weekly basis to identify weekly trends on how performance improvement implementations impact process performance. Process performance data provides the Director of Energy Services with the information necessary to track improvement team progress. As BED defines additional process improvement target metrics, Navigant recommends tracking these metrics on an ongoing basis and comparing progress towards the goals identified. BED may find value in developing a dashboard style report that shows trending of several key business processes on one page.

***Continuous key business process improvement*** – After the key business processes have undergone an initial process improvement cycle and once a target improvement metric has been established, BED would benefit from a defined program for continuous key business process improvement. This approach will ensure that the initial efficiency gains are maintained and further improved upon as opportunities arise. However, BED's main effort at this point should be to improve upon the Incentive Check Processing and Project Data Entry processes. Following these two processes, identification and improvement of the remaining key business processes should be undertaken.