

Service Provider Manual

ComEd® Energy Efficiency Program

Monitoring-Based Commissioning (MBCx) Offering

Effective January 1, 2021 – December 31, 2021

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1 Definitions

- **Application** provides a description of the MBCx offering and requests customer and building information for review prior to project acceptance.
- **Building Operator Certification (BOC)** elevates the profession of the building operator through training in energy efficiency and smart building technologies, continued education, and certification.
- **ECM Form** states ECMs and associated costs, energy savings and economic impacts. This document will be utilized throughout the entire study to communicate ECMs and seek customer approval to proceed with the implementation of ECMs.
- **Energy Conservation Measures (ECMs)** is used to describe no- and low-cost opportunities that reduce the consumption of energy in a building.
- **Energy Efficiency Service Providers (Service Provider)** are a closed network of engineering consulting firms authorized by Nexant and ComEd to conduct MBCx projects.
- **ENERGY STAR Portfolio Manager** is an online tool that is used to measure and track energy and water consumption, as well as greenhouse gas emissions.
- **Europa** is a project management tool used for uploading applications, submitting report deliverables for review, and tracking projects throughout their duration.
- **Fault Detection and Diagnostics (FDD)** is the process of uncovering errors related to the HVAC system while attempting to identify the source of the problem.
- **Implementation (IMP) Phase** occurs when facility staff or a contractor implements the selected ECMs. Technical support from the Service Provider ensures ECMs are installed correctly and any needed adjustments are made during installation.
- **Investigation (INV) Phase** occurs when the Service Provider visits the facility to analyze energy-using systems and develops a list of recommended ECMs. The Service Provider then submits an Investigation Report and calculations to Nexant for review detailing initial findings.
- **INV Report** details initial estimates of ECMs identified during the INV phase.
- **Measurement and Verification (M&V) Guidelines** are a set of general engineering guidelines that are encouraged to be followed in preparing required MBCx deliverables and supporting calculation files to ensure that calculation methods provide accurate energy and cost savings to both the MBCx offering and participants.
- **Monitoring-Based Commissioning (MBCx)** is an expert analysis of a building's existing energy using systems that identifies ECMs through the use of FDD software.
- **Nexant** is the Program Administrator, contracted by ComEd to provide administrative and engineering review services for the MBCx offering.
- **Participant** is a ComEd customer that demonstrates a commitment to supporting the Retro-Commissioning study and an interest in implementing no- and low-cost energy conservation measures.
- **Verification (VER) Phase** occurs when the Service Provider returns to the facility to verify the proper installation of ECMs and then submits a VER Report and calculations to Nexant for review detailing final project results.
- **VER Report** details final results of ECMs verified during the VER phase.

2 Introduction

Overview

One of the primary objectives of the ComEd energy efficiency portfolio is to offer customers every opportunity to help manage their energy expenses. The suite of available program initiatives provides incentives for nearly every energy-efficient technology and product available in today's market. The Monitoring-Based Commissioning (MBCx) offering is uniquely suited to work alongside or directly after existing capital improvement incentives by offering energy analysis services to identify no- and low-cost energy conservation measures (ECMs).

The MBCx offering is a fully funded study designed to help customers achieve electric energy, peak electric demand, and natural gas savings for facilities in the ComEd service territory. Savings are realized through the systematic evaluation of facility systems and implementation of cost-effective ECMs targeted to improve facility operation that, in many cases, also improve occupant comfort and production efficiency.

This document provides information and describes the Service Provider's roles and responsibilities as an approved Energy Efficiency Service Provider (Service Provider) for the ComEd MBCx offering. It is the Service Provider's responsibility to review, understand and follow the requirements outlined in this manual.

3 MBCx Information

Description

The MBCx offering is designed to use monitoring software that is integrated into the customer’s facility to help identify, implement, and verify ECMs that have a simple payback of 18 months or less to improve the efficiency of major energy-using systems and reduce energy costs without adversely affecting the facility or system operations. Once integrated, the software will run for a minimum of 12 months enabling the Service Provider to continuously monitor the facility for new ECMs and present them to the customer, provide technical support to the implementation team for the installation of selected ECMs, and verify implemented ECMs.

Participating customers will receive assistance in identifying other ComEd Energy Efficiency Program incentives, including incentives for energy-efficient equipment upgrades, however, the scope of the MBCx project is focused on operational efficiency opportunities. Major capital improvements identified such as lighting and chiller replacements will be directed to the appropriate energy efficiency program elements and are not to be calculated in detail within the MBCx offering.

The primary objective of the MBCx study is to identify and verify the customer implementation of ECMs targeting electric and natural gas savings. However, it is recognized that additional economies of scale can be realized during the MBCx study to identify other savings opportunities within a facility. As such, customers are free to pursue additional contracting with the Service Provider to expand the scope of work (e.g., identify water or other fuel type savings opportunities) and cover all Service Provider time and costs associated with these additional services. Addition of these services must not create an unnecessary delay in the utility-sponsored MBCx services.

Energy Conservation Measures

The following table lists common eligible and ineligible ECMs. These eligible ECMs should be investigated for all projects, as applicable.

Eligible ECMs	Ineligible ECMs
Reduce minimum outside air flow	Fuel switching
Correct economizer operation	Measures negatively affecting occupant comfort
Eliminate simultaneous heating and cooling	Major equipment replacement
Improve process controls	Measures necessary for basic facility operation
Reduce supply air static pressure set points	Measures eligible for standard/custom incentives
Eliminate chilled water short-circuiting	Measures that rely solely on behavioral changes
Improve chiller or other equipment sequencing	Maintenance of existing equipment
Correct refrigerant charge	
Improve equipment scheduling	
Reduce air flow in CV air handling systems	
Improve refrigeration system controls	

Find and Fix

If ECMs are identified while the Service Provider is performing their on-site work during the Investigation Phase, facility staff or a third party contractor is not permitted to implement ECMs until baseline data has been collected using the M&V Guidelines. Customer permission must be received before any ECMs are implemented.

Project progression under this approach is as follows:

- If all ECMs are “find and fix” then the Investigation Report will be waived and the Verification Report should be completed and submitted to Nexant for review via Europa.
 - The Service Provider must have had previously submitted, reviewed, and approved three (3) or more Investigation Reports across the RCx and MBCx offerings to be eligible to have the Investigation Report requirement waived.
- If some of the ECMs are “find and fix” then the Investigation Report will be required and the normal project progression will be followed with the payment of verified savings occurring after all ECMs have been verified.

Customers with Multiple Projects

Service Providers who submit three (3) or more applications at a time for the same customer will have their applications reviewed and screened more thoroughly. A technical screening call between the customer, Service Provider and Nexant will be required. For customers who have not previously participated in the RCx or MBCx offering, a maximum of three (3) applications will be accepted. Once accepted these projects must establish cost effectiveness prior to acceptance of additional applications.

Before additional applications can be accepted for the same customer the following criteria must be met:

- The initial three (3) projects must have approved Investigation Reports with an average forecasted energy savings of at least 50,000 kWh.
- A signed Investigation ECM Form or an email from the customer with the selected measures for implementation along with a defined date of completion.
- A maximum of three projects may reside in the Investigation phase.
 - If one project moves into the Implementation Phase, then the offering may consider accepting one new application.
- For Cancelled projects:
 - If one project is cancelled then the offering may consider accepting one new application.
 - If two or more projects cancel then the offering will not consider accepting new applications with the original Service Provider.
 - Any additional customer acceptances will be at the sole discretion of ComEd.

Inspections

Nexant will perform inspections during Investigation and Verification phases as needed to ensure optimal performance of the RCx offering. Inspections provide support to new Service Providers in conducting site visits and understanding M&V Guidelines, reducing calculation discrepancies and addressing technical review comments, and supporting the evaluation process. Service Providers will be notified prior to the inspection taking place and will be afforded the opportunity to attend with Nexant. Projects that meet any of the following criteria will be flagged for an inspection.

- A Service Provider’s first project for either the RCx or MBCx offering.
 - Please coordinate with Nexant prior to scheduling the first site visit.
- Projects with Investigation or Verification Report energy savings exceeding 1,000,000 kWh and/or 30,000 therms.

- When the Service Provider performs implementation of ECMs.

Nexant reserves the right to randomly inspect any projects.

New Construction to MBCx

Buildings that have undergone a recent major renovation or new construction are eligible to participate in the MBCx offering. To reduce the Service Provider’s risk of identifying and verifying low energy savings for these projects an additional fee is available to help offset the cost of monitoring. This monitoring fee is based on the accepted electric energy savings target as shown below:

Energy Savings Target (kWh)	Monitoring Fee (\$)
Target < 300,000	5,000
300,000 ≤ Target < 600,000	10,000
600,000 ≤ Target < 800,000	15,000
Target ≥ 800,000	20,000

The monitoring fee will be paid out at the conclusion of the 12-month monitoring period if the monitoring threshold is not met. The verification fee (see Fees and Invoicing) will be paid out once the monitoring threshold has been exceeded.

$$\text{Monitoring Threshold (kWh)} = \frac{\text{Monitoring Fee}}{\text{Verification Fee Rate}}$$

If the new construction to MBCx approach is being pursued, then guideline for minimum required building occupancy is adjusted. Upon acceptance, the application fee will be paid out in full, however the integration fee will be held until after building occupancy has exceeded 70% occupancy.

4 Customers

Customer Participation Benefits

Customers receive the following benefits as part of their participation in the MBCx offering:

- Technical support during integration to install monitoring software and equipment.
- Site investigations conducted by approved Service Providers detailing recommended ECMs, at no cost to the customer.
- Technical support during implementation from the Service Provider to ensure ECMs are installed correctly and any needed adjustments are made.
- Verification Report detailing the results and energy savings for the project.

Eligibility

To apply for an MBCx study, a customer must be served by ComEd and have a peak demand rate between 100 kW and 10,000 kW. Service Providers are encouraged to reach out to Nexant to confirm customer eligibility.

Eligible customers must also meet these guidelines:

- Electrical usage of three (3) GWh per year or more.
- Customer staff willing to support the study and are interested in implementing identified ECMs.
- No major capital or construction projects planned within one year of Application acceptance.
- No expected change in building ownership or management.
- Projects may also be eligible to include natural gas in the scope of the project if the following criteria are met:
 - Natural Gas is the main heating source.
 - Natural Gas Account Number is provided on the application and the account is active.
 - The natural gas utility is Peoples Gas or North Shore Gas.
 - Eligibility confirmed prior to Application acceptance.
- Customers in certain towns served by municipal electric authorities may not be eligible as they do not pay into the ComEd energy efficiency fund, however this does not apply to all addresses in these towns. To confirm account eligibility please provide the customer address to Nexant if located in the following towns:
 - Naperville, St Charles, Batavia, Geneva, Winnetka, Rochelle and Rock Falls
- Past participants (as determined by account number) who had a project verified in 2017 or earlier are eligible to submit a new application now. The table below outlines when past participants are eligible to submit a new application. This table only applies if the new application has a similar scope of work (e.g. ECMs, systems, areas) as the previous project. An application with a new scope of work is eligible to participate at any time. Integration fees may be waived.

Initial Project Verified	Eligible to Submit New Application
2017	2021
2018	2026
2019	2027
2020	2028
2021	2029

Initial Project Verified	Eligible to Submit New Application
2022	2030
2023	2031

Customer Responsibilities

Once accepted into the MBCx offering the customer will be responsible for the following items:

- Become familiar with the MBCx offering and process
- Commit facility staff time over the duration of the MBCx study
- Integrate the FDD software with facility BAS in a timely manner
- Collaborate with the Service Provider in identifying ECMs by providing facility access, staff interviews, BAS review, data acquisition, contractor invoices, energy bills, etc.
- Acquire quotes from contractors by working with the Service Provider and reserving funding for ECM implementation
- Implement ECMs within 60 days of receiving recommendations from the Service Provider

Customer Satisfaction

Customer satisfaction is one of the top priorities of the MBCx offering. As such, it is the Service Provider’s responsibility to professionally and accurately represent the offerings. Service Providers are expected to respond to all customer inquiries in a timely fashion and communicate any project issues to Nexant. Failure to meet expectations could result in removal from the MBCx offering and/or a transfer of a project to another Service Provider.

BOC Training

Nexant recommends that at least one staff member from the customer project team complete Level I or Level II of the Building Operator Certification (BOC) training program within 12 months of the RCx verification meeting to ensure measure persistence. The BOC training program is administered by Midwest Energy Efficiency Alliance which offers two (2) levels of training for building engineers and maintenance personnel:

- Level I: Building Systems Maintenance
 - Topics covered: Fundamentals of HVAC controls, lighting, indoor air quality, and low cost operational improvements
- Level II: Equipment Troubleshooting and Maintenance
 - Topics covered: Whole building scoping for operational improvements, building commissioning, and optimizing HVAC controls for energy efficiency

The cost for each session is \$1,400 which includes all class materials, books and certificate of completion. Customers of ComEd, North Shore Gas, Peoples Gas and Nicor Gas may be eligible for a \$500 tuition rebate which will be available after completion of the training and certification.

More information and to register for a session can be found at www.theboc.info.

5 Service Providers

All MBCx offering activities and services will be delivered through approved Service Providers.

Service Provider Benefits

The Service Provider receives the following benefits as part of their participation in the MBCx offering:

- Milestone payments upon Application acceptance, Integration approval, and Verification Report approval.
- Marketing support and promotional materials.
- Service Provider's company information listed on the ComEd online directory of contractors.
- MBCx-related training.
- Calculation tools for use in quantifying energy savings.
- Ongoing support and oversight.

Service Provider Responsibilities

The Service Provider will primarily be responsible for their own promotion of the MBCx offering. Nexant will provide support and training on various MBCx offering topics such as engineering, outreach, and marketing. The Service Provider shall perform all services in compliance with the Contractor Participation Agreement and with this manual. The manual provides the MBCx offering rules, customer qualifications, participation process, and project steps required to be followed by the Service Provider. Below is a summary of the Service Provider's responsibilities:

- Complete all MBCx participation requirements and submit all required documentation to Nexant, as requested and specified in the Contractor Participation Agreement.
- Ensure all staff performing services complete on-boarding training and are identified in the Key Personnel Forms.
- Promote the MBCx offering in compliance with the Promotional Rules and Key Messaging Guidelines for Authorized Providers as outlined in this manual.
- Provide services to eligible ComEd customers only.
- Accurately inform customers about the MBCx offering and qualifying equipment, incentive amounts, participation process, and eligibility requirements and provide customers with the appropriate approved materials.
- Perform all work in a safe manner in compliance with safety related control devices and protocols required to perform the scope of work; comply with all applicable laws, regulations and standards as well as any other related safety requirements.
- Invoice the MBCx offering in an accurate and timely manner to RCxInvoices@nexant.com when milestones have been approved by Nexant.
- Have appropriate resources to perform work, including:
 - Staffing and cash-flow.
 - A comprehensive execution plan for each customer participating in the MBCx offering.
 - Communication plan to ensure Service Provider is responsive with customer leads, MBCx offering inquiries and milestone deadlines.
- When assembling MBCx reports:
 - Use and follow the available ComEd branded templates and M&V Guidelines.
 - Leverage available standard calculators or Excel based spreadsheets to support savings for ECMs.
 - Review commonly found ECMs as included in the ECM Form and recommend accordingly.
- Communicate with Nexant, customers and ComEd in a professional and timely manner.
- Cooperate and participate in randomly chosen project inspections before, during, and/or after project installation.

Safety

The MBCx offering follows a “hands-off” policy to ensure the highest level of safety when performing spot measurements, data logger deployment/removal, functional testing or other potentially hazardous work. The MBCx offering requires building staff or a building hired electrician to support the efforts of the Service Provider when hazardous work is performed. In the event of an accident Nexant must be notified within 1.5 hours of the occurrence.

The equipment used as part of the MBCx monitoring tool/software is not considered electric equipment and is excluded from the “hands-off” policy.

The Service Provider safety program as referenced in the Contractor Participation Agreement must include the below minimum provisions:

- A safety manual addressing the following topics along with proper measures for training and adhering to:
 - Lock-Out Tag-Out Procedures
 - Personal Protection Equipment
 - Fire Retardant Clothing
 - Ladder Safety
 - Lift and Aerial Safety
 - Specific Safety Related to Electrical Work
 - HAZCOM
 - Blood-Borne Pathogens
- Safety policy and procedures which address all required local, state and federal occupational safety and health standards and trade-specific licensing and certification requirements and a safety officer responsible for MBCx implementation.
- Safety rules and safe working practices which must be followed by employees at any location for the prevention of illness and injury.
- Processes addressing identification, prevention and control, and communication of safety and health hazards.
- Employee training which includes addressing site-specific safety and health requirements.
- Tools, instruments and safety equipment that meet minimum safety ratings which are available and provided to employees.
- Requirements for the use of appropriate personal protective equipment in all operations where there is an exposure to hazardous conditions or where regulations indicate the need for using such equipment.
- An injury and incident response and reporting procedure including Whistleblower protections and emergency action planning and enforcement procedures to address violations.

Commitment Level

Service Providers are required to submit, and have accepted, at least one application within the RCx or MBCx offering by December 31st of each calendar year to be eligible for renewal the following year, starting January 1st.

Scoring

To provide feedback on Service Provider performance within the MBCx offering, a scoring system is used to fairly assess the historical services provided by each Service Provider. Service Providers are held accountable on the following key performance indicators:

Key Performance Indicators

- Customer satisfaction
- Quality of deliverables
- Adhering to project schedule
- Overall value provided

These items are quantified for each Service Provider and discussed with the goal to encourage constructive feedback and continuous improvement. A poor score may result in removal from the MBCx offering. Complete details of the scorecard are available upon request.

6 Project Schedule

Completion of MBCx projects in a timely manner is crucial to program success. Not all projects will follow the same timeline, and as such, the timeline listed below should be adjusted as needed to fit each individual project. Nexant will request specific deliverable submission dates from the Service Provider at the start of each new phase. During each phase, Nexant should be notified if the Service Provider expects more than the default amount of time to complete the phase.

Phase	Assigned Party	Task	Allotted Days	Due Date
Integration	Joint	Kick-off meeting		01.01.21
	Joint	Ensure monitoring software integration is completed successfully and fully operational	90	04.01.21
Monitoring and Identification	Service Provider	Perform monitoring of system (collect baseline operations)	Ongoing	
	Service Provider	Perform assessment and identify ECMs	45	
	Joint	Recurring conference calls: Identify ECMs for immediate implementation	Ongoing	
	Service Provider	Develop and submit calculations and INV Report to Nexant		05.27.21
	Nexant	Review calculations and INV Report	7	
	Service Provider	Review calculations and INV Report	7	
	Nexant	Request revisions of calculations and INV Report if needed	2	
	Service Provider	Revise calculations and INV Report if needed	2	
	Service Provider	Present INV Report to customer		06.14.21
	Customer	Customer reviews INV Report	7	
	Joint	INV Report review meeting; Customer selects ECMs for implementation		06.21.21
Implementation	Joint	Recurring conference calls continue	Ongoing	
	Service Provider	Provides technical support	Ongoing	
	Customer	Leads implementation of ECMs and notifies Service Provider and Nexant upon completion	60	08.20.21

Phase	Assigned Party	Task	Allotted Days	Due Date
Verification	Service Provider	Perform verification of installed ECMs	28	
	Service Provider	Update and submit calculations and VER Report to Nexant		10.01.21
	Nexant	Review calculations and VER Report	7	
	Service Provider	Review calculations and VER Report	7	
	Nexant	Request revisions of calculations and VER Report if needed	2	
	Service Provider	Revise calculations and VER Report if needed	2	
	Service Provider	Present VER Report to customer		10.19.21
	Customer	Customer reviews VER Report	7	
	Joint	VER Report review meeting		10.26.21
	Service Provider	Continue monitoring services and repeat above phases as necessary	Ongoing	
	Joint	Terminate or extend monitoring contract		04.01.21

7 MBCx Offering Phases

The MBCx offering consists of five (5) phases: Application, Integration, Monitoring and Identification, Implementation, and Verification.

Application Phase

Application Overview

The Application Phase includes the business development efforts to identify and select a cost effective MBCx offering participant. The Service Provider must work with customers to complete and sign the application, set reasonable energy savings target(s), and participate in technical review calls with the customer and Nexant as needed. The Application Phase will conclude with a notification to the Service Provider and customer of application acceptance or deferral.

- Application Phase (4 weeks)
 - Complete and submit signed application to Nexant via Europa
 - Deliverable: (1) Application
 - Participate in technical review calls
 - An acceptance or deferral notice will be communicated

Application Review

A pre-application screening of the facility and facility staff should be completed prior to submitting an application for review. Performing a proper screening will limit customer, Service Provider, and Nexant investment for an application that does not meet the MBCx offering requirements. Service Providers should complete a two-to-four hour site visit to gain cursory knowledge of the facility and work with the customer and facility staff to determine if a successful MBCx study is feasible.

Nexant will review completed applications upon submission via Europa. In addition to the customer eligibility requirements described above preference, will be given to facilities with the below characteristics:

- The facility should have accessible and up-to-date building documentation and records
- The facility should have an above average EUI (kBtu/ft²) compared to buildings of the same class and/or have a low Energy Performance Rating from ENERGY STAR Portfolio Manager
- The facility should exceed 150,000 ft² in air-conditioned floor space and/or 500,000 ft² in total floor space
- Electric energy savings target greater than 200,000 kWh
- Building leased occupancy should be greater than or equal to 70%
- The facility should be free of major energy system problems requiring capital repairs or replacements and have no planned major system renovations or retrofits
- The facility should have an existing and functional BAS with DDC
- The customer and their O&M staff should express a commitment to be actively involved in the study including the following:
 - Providing access to the facility
 - Providing time for facility personnel to interface with the Service Provider
 - Assisting with collection and reporting of facility data

If additional clarification is needed to make a decision on application acceptance or deferral a call may be requested between Nexant, the Service Provider and/or customer.

Service Provider Selection

Customers are required to utilize an approved MBCx offering Service Provider to be eligible to participate. Except in limited cases (e.g., when a Service Provider is unable to provide the required MBCx services),

applications which were brought to the program through the efforts of a Service Provider will be assigned to that Service Provider. Nexant will assign a Service Provider to customers who do not already have one. However, in all cases, customers are free to request services from other approved Service Providers.

Service Providers who provide implementation services to a customer for ECMs recommended as part of the MBCx study must notify Nexant to accompany them on their verification site visit as an inspection. In situations where Service Providers conduct the verification site visit without Nexant present they will forfeit the verification payment.

Savings Target(s)

To help ensure that the project will result in cost-effective savings for ComEd, Nexant will work with the Service Provider to establish an annual electric, and if eligible, natural gas savings target(s) for the facility. The savings target(s) will be a function of, but not limited to, the facility type, size and annual energy usage.

Integration Phase

Integration Overview

The Integration Phase is when the monitoring software and equipment are installed at the customer’s facility. The Service Provider must work with the customer, facility staff, software provider, and controls contractor to ensure proper integration. Service Providers are required to submit a Proof of Integration Checklist confirming proper integration to Nexant for review and approval before beginning the Monitoring and Identification Phase.

- Integration Phase (12 weeks)
 - Provide technical support during motoring software and equipment installation
 - Ensure all necessary points are tied into the customer’s BAS
 - Once integration is deemed complete submit the Proof of Integration Checklist to Nexant via Europa
 - Deliverable: (1) Proof of Integration Checklist
 - Upon approval of Integration:
 - Submit invoice to Nexant via email at RCxInvoices@nexant.com

Integration Review

The Service Provider will assist the software provider with installation of the monitoring software and equipment at the customer’s facility and test the system to ensure that everything is operating properly and meets the MBCx offering requirements. The Service Provider must make any necessary changes to the system. To demonstrate successful integration, the Service Provider will complete the items listed in the Proof of Integration Checklist and submit to Nexant for review. Upon approval of integration completion the 12-month monitoring period will begin.

Monitoring Software Selection and Capabilities

Nexant does not require a specific monitoring software to be installed, however, the selected software must include the following capabilities:

Capabilities	Description
Operational data visualization	Visualize and plot time series operational data and control setpoints (e.g., temperature, pressure, flowrate)
Key performance indicator (KPI) tracking	Track KPI for equipment or system efficiency (e.g., chilled water plant [kW/ton] and heating plant efficiency) and comfort-related indoor environmental conditions (e.g., occupant comfort index showing the percent of operating hours within zone target temperature ranges for all spaces).

Capabilities	Description
Fault detection and diagnostics	<p>Identify and diagnose faults within the building systems. Below is a partial list of faults for HVAC systems found in FDD tools.</p> <p>General faults applicable to all HVAC equipment:</p> <ul style="list-style-type: none"> • Sensor faults, including those outside of a feasible range, flat-lining, bias, drift, or failure • Stuck/leaking valves and dampers in water- and air-side systems • Scheduling (i.e., equipment is operating outside of intended hours) • Hunting or cycling (i.e., poorly tuned control loops) • Manual overrides in place <p>Air handling units:</p> <ul style="list-style-type: none"> • Under or over economizing • Excessive outdoor air intake • Unnecessary simultaneous heating and cooling • AHU discharge air temperature reset • AHU static pressure reset • Fouled or blocked coil and dirty filters <p>Terminal units:</p> <ul style="list-style-type: none"> • VAV minimum supply airflow too high (causing reheat) • VAV supply airflow constantly at maximum flow • Zones outside an acceptable space temperature range • Space heating and cooling setpoints: insufficient dead-band or night setback <p>Chilled water plant:</p> <ul style="list-style-type: none"> • Chilled water leaving temperature reset • Chilled water plant lockout • Hydronic differential pressure reset • Cooling tower condenser water leaving temperature reset • Chiller short cycling <p>Boiler plant:</p> <ul style="list-style-type: none"> • Hot water plant lockout • Hot water leaving temperature reset • Hydronic differential pressure reset • Boiler short cycling
Fault prioritization	<p>Prioritize fault based on an estimate of impact, and recommend actions</p>
Fault reporting and data export	<p>Generate a default or customized report of the identified faults; allow users to export operational data</p>

Proof of Integration

The Proof of Integration Checklist consists of the following seven (7) items. More information can be found in the Proof of Integration Checklist.

Proof of Integration	
List of monitored equipment	List all equipment names/IDs including terminal equipment, if name is encoded please include descriptive name
Points list	Point tag, name, unit
Sample trend data file	At least 1 AHU, 1 terminal box, and chiller plant showing all points for 1 week with 15 minute intervals
List of top 10 algorithms	Logic rules showing how exceptions will be identified
Sample exception/error report	Show algorithms have been run and exceptions flagged for further investigation
Customer web portal	Provide read only access or schedule a demo with Nexant to confirm connection to portal

Monitoring and Identification Phase

Monitoring and Identification Overview

The Monitoring and Identification Phase encompasses the entire 12-month monitoring period. The goal of the Monitoring and Identification Phase is for the Service Provider to use the installed software to monitor the energy systems and identify ECMs which can be presented to the customer for implementation. The identification, implementation, and verification of ECMs can occur at any time over the course of the 12 months.

The Service Provider should gather information needed to develop energy saving calculations by performing activities such as conducting a site visit, functionally testing or spot measuring equipment, collecting and reviewing trend data, and/or interviewing the facility staff. More information regarding investigation methods can be found in the M&V Guidelines.

- Monitoring & Identification Phase (52 weeks)
 - Monitor facility utilizing the software and use authorized field personnel to perform on-site work to identify ECMs
 - Collect quotes for installation cost of recommended ECMs
 - Following M&V Guidelines, develop energy calculations and submit Investigation Report to Nexant via Europa
 - Deliverables:
 - Investigation Report
 - Calculation files
 - Trend files
 - Supporting documentation
 - (e.g. implementation quotes, equipment screenshots)
 - Upon notice of first draft review completion of Investigation Report:
 - Deliver Investigation Report to customer
 - Follow up with customer to select ECMs for Implementation

Monitoring and Identification Review

The Monitoring and Identification Phase is very similar to the RCx offering's Investigation Phase but with the utilization of the monitoring software and equipment. The intent is to continuously identify ECMs and present recommendations to the customer for implementation. Each time the customer selects to install ECMs the project moves into the Implementation Phase and then the Verification Phase.

Upon approval of the Verification Report the project returns to the Monitoring and Identification Phase to identify additional ECMs. This cycle can occur as many times as necessary throughout the duration of the 12-month monitoring period. The ECMs contained in each iterative cycle are numbered as bundles for tracking purposes.

Prior to the customer proceeding with implementation of a bundle, the Service Provider must first develop energy calculations and submit an Investigation Report to Nexant for review and approval. If the Service Provider has previously submitted, reviewed, and approved three (3) or more Investigation Reports across the RCx and MBCx offerings they may be eligible to have the Investigation Report requirement waived. In cases where the Investigation Report is waived the Service Provider can present ECM recommendations directly to the customer for implementation without having Nexant review the energy calculations. However, it is still important for the Service Provider to collect sufficient baseline data according to the M&V Guidelines.

Implementation Phase

Implementation Overview

The Implementation Phase is when installation of selected ECMs occurs. The goal of the Implementation Phase is to fully install all agreed-upon ECMs and ensure they are ready for the Verification Phase. The Service Provider works hand-in-hand with the customer's implementation team to install the selected ECMs and provide recommendations to address any issues. The implementation team consists of the facility engineers, operational staff, and any mechanical, electrical, or controls contractors. Implementation of the ECMs is the responsibility of the customer, however, the Service Provider is required to provide technical support throughout the phase.

- Implementation Phase (8 weeks)
 - Provide technical support to customer implementation team
 - Participate in bi-weekly update calls
 - Ensure proper ECM implementation
 - Notify Nexant after implementation is complete

Implementation Review

The customer is responsible for fully funding implementation of selected ECMs and activities that may include contracting with mechanical/electrical contractors, obtaining professional engineering designs, controls modifications, and installation of equipment that is required for each ECM. The customer may choose to solicit these services from the Service Provider, a third party, or perform installation using in-house labor. If the Service Provider performs the implementation then they must have Nexant accompany them on the verification site visit as an inspection.

The Service Provider is responsible for providing implementation assistance to customers to guide them from a recommended solution to the physical installation of each ECM. These activities may take the form of troubleshooting recommended control sequences, suggesting alternative ECM strategies, commenting on alternative design solutions and answering technical questions. The Service Provider should be available on site or by phone throughout the phase and be in close communication with any third parties installing ECMs.

Verification Phase

Verification Overview

The Verification Phase includes a review of the implemented ECMs resulting in a Verification Report. The goal of the Verification Phase is to confirm installation of selected ECMs and quantify actual energy savings, making adjustments to the energy saving calculations from the Monitoring and Identification Phase as needed. The Service Provider should begin the Verification Phase by confirming installation of selected ECMs. This can be achieved by conducting visual inspections, functionally testing or spot measuring equipment, collecting and reviewing trend data, and/or interviewing the implementation team. More information regarding verification methods can be found in the M&V Guidelines.

- Verification Phase (8 weeks)
 - Using authorized field personnel, perform on-site work and verify implemented ECMs
 - Following M&V Guidelines, update energy calculations and submit Verification Report to Nexant via Europa
 - Deliverables:
 - Verification Report
 - Measure Persistence Guide
 - Calculation files
 - Trend files
 - Supporting documentation
 - (e.g. implementation invoices, equipment screenshots)
 - Participate in bi-weekly update calls
 - Upon approval of Verification Report:
 - Submit invoice to Nexant via email at RCxInvoices@nexant.com
 - Deliver Verification Report to customer and attend Verification review meeting
 - Return to the Monitoring and Identification Phase

Verification Report

Any discrepancies found between the estimated and actual energy savings calculations must be documented in the Verification Report and supported by sufficient trend data. If discrepancies exist, Nexant may require that all verification activities be halted until the customer completes full and proper installation of ECMs. The energy savings must ultimately be recalculated, and the revised energy savings for each ECM presented in the Verification Report.

The Verification Report is an updated version of the Investigation Report with verified results of implemented ECMs. The report is to be updated after verification of each ECM bundle throughout the MBCx study and is used to educate the customer on the impacts of the implemented ECMs located at their facility. The approved report(s) must be presented to the customer and a meeting scheduled to review results. More information regarding the report can be found in the report template.

The Measure Persistence Guide serves as a reference for maintaining and correcting ECM sequence of operations if they fall out of calibration to ensure lasting measure persistence.

8 Fees and Invoicing

Service Provider Fees

Service Provider fees for the MBCx offering are paid out on a fixed milestone and dollar per kWh basis with the following conditions:

- The application acceptance fee is fixed at \$5,000 per application accepted.
- The Integration fee is fixed at \$15,000 if the electric energy savings target is less than 300,000 kWh and \$25,000 if the electric energy savings target is greater than or equal to 300,000 kWh.
- The Verification Report fee is calculated by multiplying the Verification Report kWh savings by \$0.100/kWh.

For projects with natural gas opportunities an additional Service Provider fee may be available with the following conditions:

- There are no additional fees for application acceptance or Integration for projects with natural gas energy savings targets.
- The Verification Report fee is calculated by multiplying the Verification Report therm savings by \$1.00/therm for Peoples Gas and North Shore Gas customers. There is no Service Provider fee available for Nicor Gas customers.

Fees include all taxes and expenses. Payments are distributed as detailed below:

Phase	Electric	Natural Gas	
	ComEd	Peoples Gas and North Shore Gas	Nicor Gas
Application	\$5,000	-	-
Integration	\$15,000 (Target < 300,000 kWh)	-	-
	\$25,000 (Target ≥ 300,000 kWh)	-	-
Verification	\$0.10/kWh	\$1.00/therm	-

Invoices

Service Providers should submit invoices to Nexant by email at RCxInvoices@nexant.com and are authorized to invoice Nexant after each milestone is approved by Nexant. All payment terms are Net 10.

The following items are expected to be included in the invoice for payment processing:

- Invoice date
- Invoice number
- Service Provider name
- Service Provider address
- Vendor identification number
- Service Provider billing number
- Period covered by invoice
- Currency
- Payment terms
- Service Provider principal contact
- Remit to address
- Nexant principal contact
- Bill to address
- Offering name
- Project number
- Project name
- Payment utility
- Payment milestone
- Fee calculation
- Payment amount

9 Marketing and Outreach

Marketing Communications Support

These communication tools are available to authorized Service Providers to support in-field sales efforts:

Promotional Rules

Aiding you to accurately and effectively promote the program, these rules will help you maximize ComEd co-branding and the promotion of your affiliation with the program while adhering to ComEd marketing standards. The promotional rules are included in your Contractor Participation Agreement and located on the [Service Provider Portal](#). Authorized Service Providers are required to follow the promotional rules. The promotional rules are meant to provide Service Providers maximum ability to promote the program while giving clear direction on what they can and cannot say, write, or promote about the program. Service Providers who do not follow the promotional guidelines may be removed from the program so it is imperative that all members of a Service Provider's staff understand and follow the guidelines outlined in the document. Any questions should be directed to the Service Provider's assigned project coordinator.

Key Messaging Guidelines

These guidelines have been created to support authorized Service Providers in their messaging of the program to customers. Refer to the following guidelines when developing materials to share with customers or community organizations. For a detailed list of Service Provider promotional rules that must be adhered to as a Service Provider with the program, please see the Contractor Participation Agreement on the [Service Provider Portal](#).

Audience and Key Messaging

Consistent messaging is critical when communicating about the program to potential and current customers. These key messages are designed as a reference for conveying verbal and written communications to customers. Below please find details on how to find customers to target, followed by a brief overview of the program marketing key messages. When talking with customers keep it simple and try not to confuse them—we understand that the back end of the utility programs can get complicated, but to the customer they should be as seamless as possible.

Please note: The customer is referred to as "you" in several sections of this document to facilitate using this as a script when speaking to the customer.

Ideal Project Profile

Project characteristics

- Motivated customer interested in energy efficiency
- Customer has time available for energy efficiency improvements
- Customer expresses a need for help to identify improvements
- Customer expresses a need for an incentive to fund the initial study.

General Program Messaging

MBCx optimizes the energy performance of your facility to improve your business's bottom line while ensuring a comfortable environment for building occupants. Install MBCx software at your facility to help identify no- and low-cost operational improvements to your energy-using systems during at least 12 months of monitoring.

Saving Energy is as Easy as 1, 2, 3

7. Select a Service Provider from our ComEd Energy Efficiency Service Providers list and submit an application.
8. Receive personalized energy-saving recommendations. Your Service Provider will work with you to install MBCx software at your facility and identify no- and low-cost opportunities unique to your business.

9. Implement MBCx improvements of your choice during at least 12 months of monitoring and start saving money and energy.

Additional Messaging

- The Illinois utility energy efficiency programs are rate-payer funded. Electric and natural gas utility customers pay into the fund marked as “Energy Efficiency Program” on your bill.
- The ComEd® Energy Efficiency Program and authorized Service Providers are focused on providing high customer satisfaction while attaining significant energy reductions for your facility.
- Your selected Service Provider will assist you every step of the way to help you achieve energy savings for your business.

Awards and Rankings from ComEd

YOU MAY NOT

- Utilize any language that refers to the Request for Proposal (RFP), your company's selection and how many companies were evaluated through the RFP process.
- Utilize any language that refers to your rank in terms of savings generated, received payments, or quantity of projects.

Service Provider Portal

Your status as an authorized Service Provider with the ComEd MBCx offering grants you access to many program resources. From the [Service Provider Portal](#) website you can:

- View upcoming events on the event calendar
- View past communications
- Access to resources
- Access to Europa Project Management Tool
- View trainings and webinars
- View, download, and order MBCx offering collateral through the marketing page
- Access to historical data

Visit <https://comedrcx.eeserviceproviders.com> and use your provided credentials to access the site.

Marketing Materials Toolkit (MMT)

From [Service Provider Portal](#) website you have the ability to go to the MMT to order program materials produced with your company name, logo and contact information (see [Figure 1](#) below). These materials will help directly connect a customer with the program and your company and include:

- Co-branded fact sheet
- Co-branded project snapshot- highlight a successful project

With your unique login/username, you may use the online system to obtain these customized PDFs and printed documents (Service Providers are responsible for printing costs). The MMT website is <https://tricolor51ordercloud.com/NEXR/>. Contact dkasprzyk@nexant.com for your unique username and password.

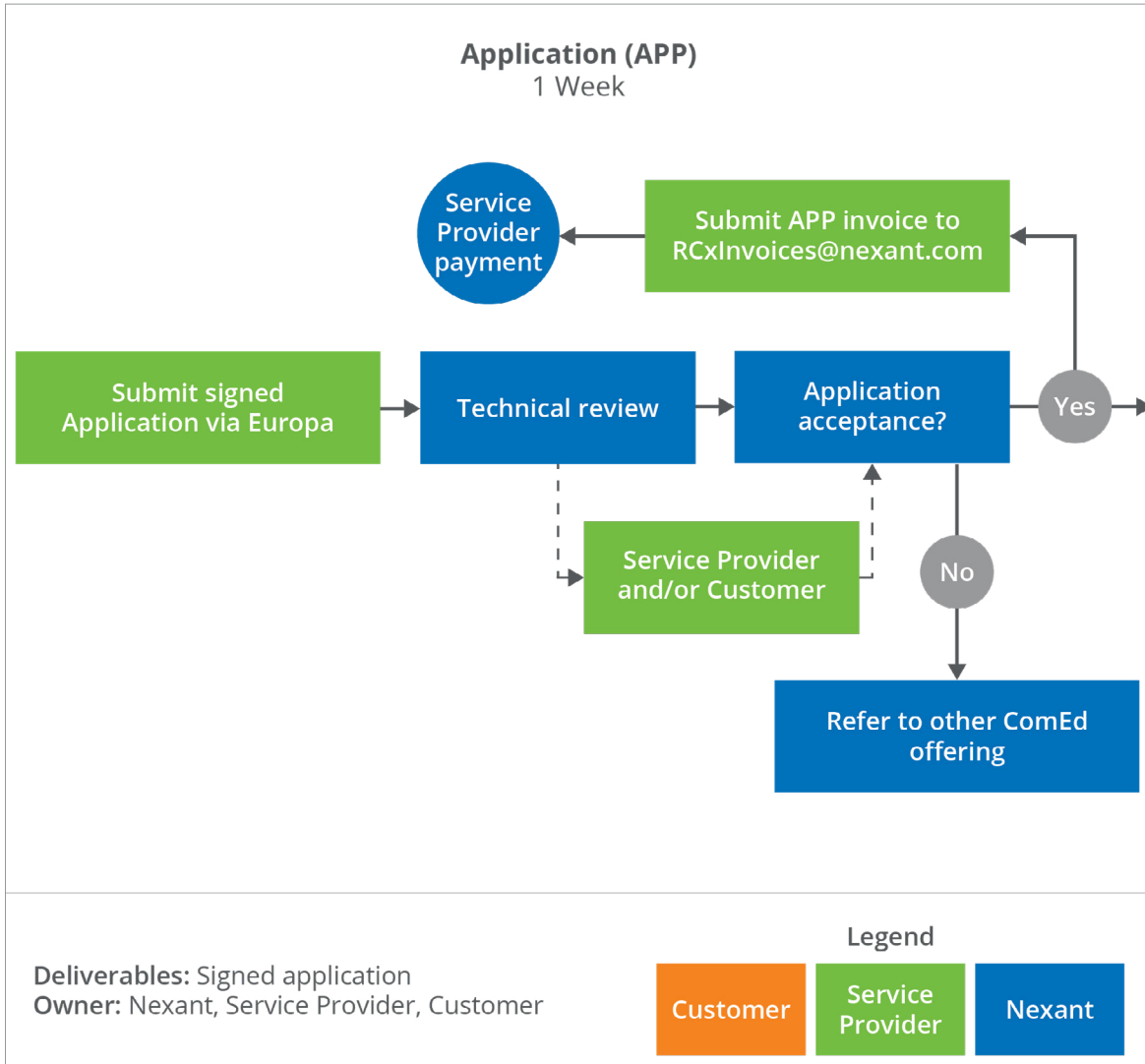
Note: All key program documents and paperwork must be completed to receive co-branded collateral through the MMT.

Figure 1. Marketing Materials Toolkit Co-Branding Example

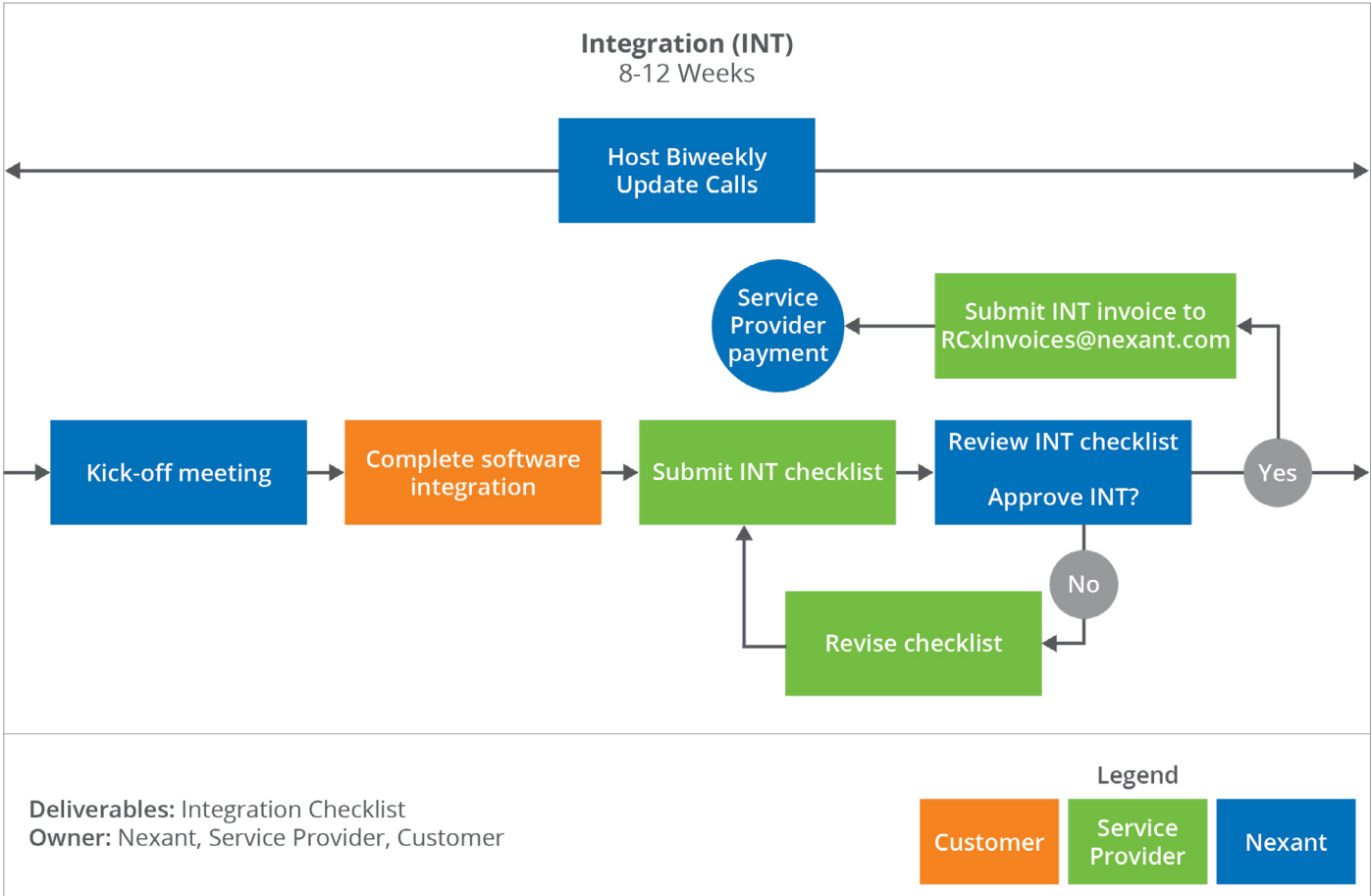
CONTACT US TODAY	Insert Logo (1.5" x .75")	Company Name Contact Name, Contact Title Address 1, Address 2, City, State Zip Contact Cell #, Contact Office #, Contact Fax # Contact Email, Website
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10 MBCx Offering Flow Charts

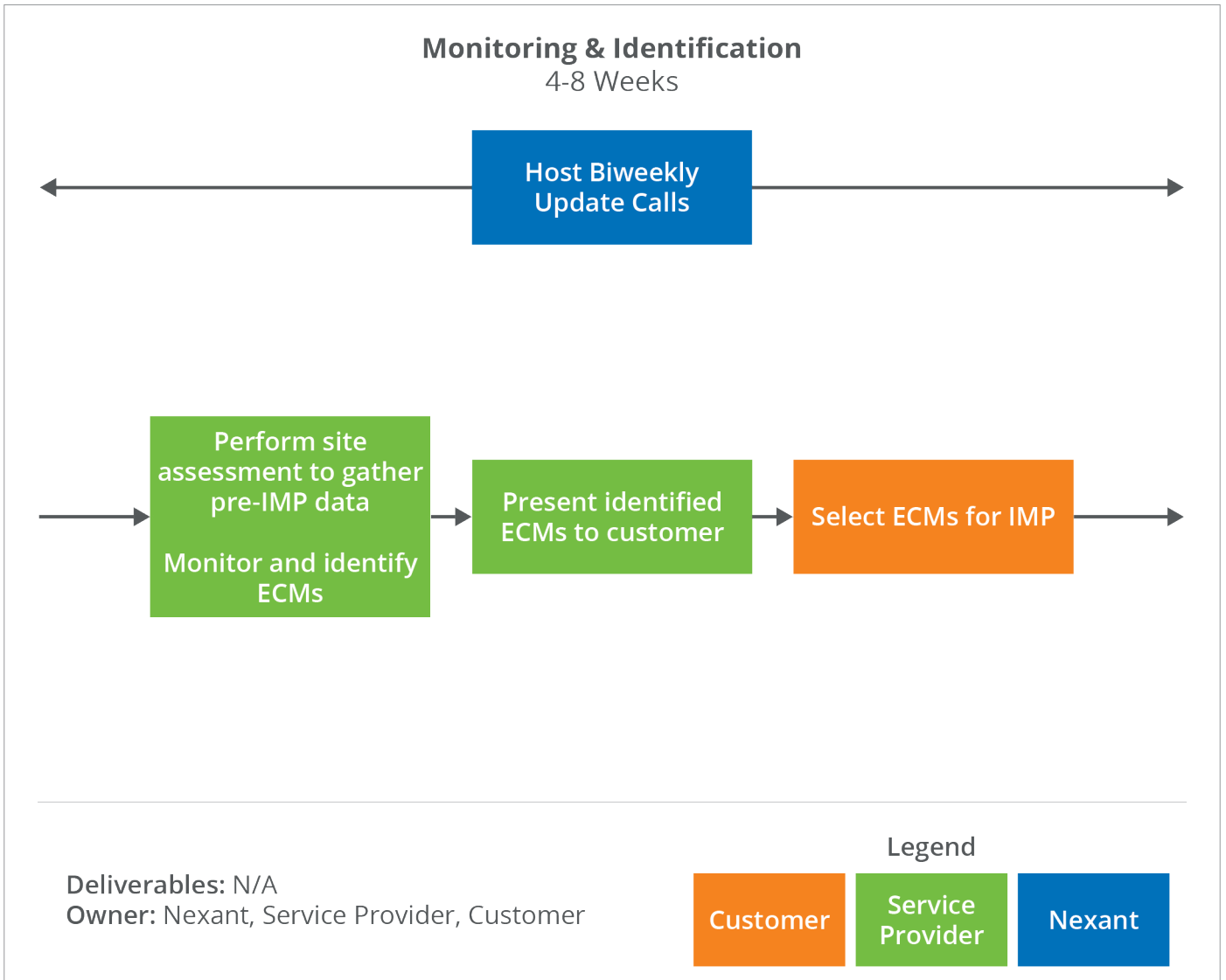
Application (APP) Phase



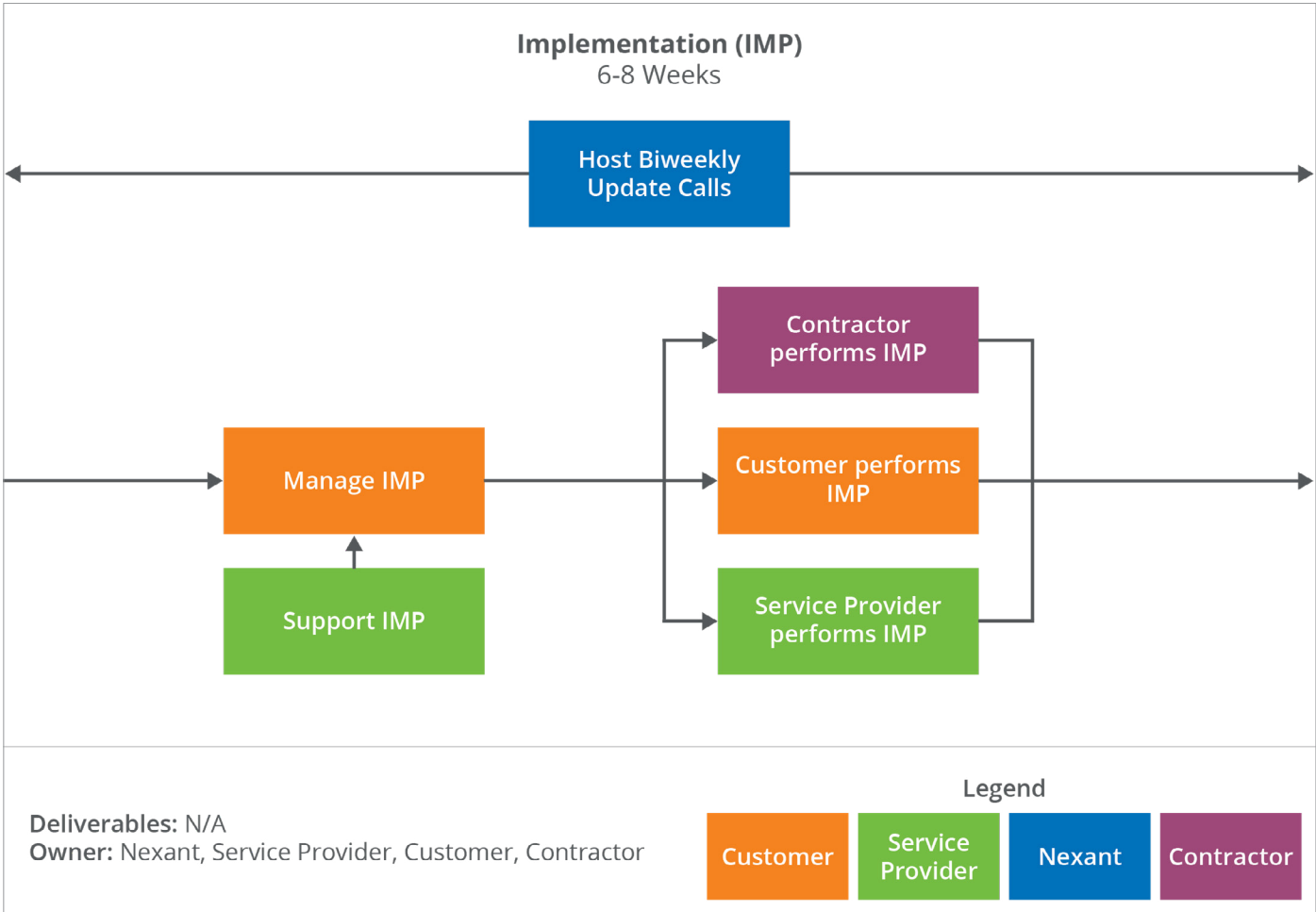
Integration (INT) Phase



Monitoring (MNT) and Identification Phase



Implementation (IMP) Phase



Verification (VER) Phase

