



 **M**POWERING BUSINESS WITH SMARTER FACILITIES

Getting to Know

# Our Presentation Team



**Jim O'Farrell**

Operations Manager  
High Voltage Utility



**JR Weldon**

Sr. Project Manager  
High Voltage Utility



**Chuck Hickernell**

High Voltage Manager  
Lock Haven



**Ken Adkins**

Project Executive  
High Voltage Utility

**“Always be thankful.  
Never be satisfied.”**

**- W. THOMAS MUSSER**





# Timeline History

## Building Automation

In 1979, Building Automation Systems is formed providing customers with engineered building monitoring & control systems.

1964



### Family Business!

Musser Brothers – Tom & Dick (and yes, they really do have a brother named Harry) found Tri-M.

1966

### Setting Up Shop

Tom & Dick set up shop on South Walnut Street in Kennett Square, Pennsylvania.

1972



### Sole Ownership

Tom Musser purchases Dick's half of the business and Tri-M Electrical Contractors is formed.

1975

### High Voltage Team

High & Medium Voltage service team is formed providing customers with pole line & industrial solutions.

1990

### Lehigh Valley Expansion

Tri-M expands operations into the Lehigh Valley by opening an office in Allentown, Pennsylvania.



Timeline

# History

1997



## Headquarters

Growth necessitates construction of Tri-M's current headquarters at 206 Gale Lane in Kennett Square, Pennsylvania.

2011

## Delaware & Northern PA Expansion

Tri-M expands operations again. This time opening offices in Delaware and Northern Pennsylvania.

2016



## Legacy Endures

Founder, Tom Musser, passes away and owning partners, Jim Horn, Ron Bauguess and Chris Peirson, commit to continue the Musser legacy of excellence.

2024

## Tri-M Turns 60

Tri-M celebrates 60 years of providing top-of-class service and solutions!

TODAY



## Now 100% Employee Owned

In 2022, Tri-M became an ESOP, which stands for "Employee Stock Ownership Plan". The legacy now continues to grow forward with every employee.



**M**POWERING BUSINESS WITH SMARTER FACILITIES

LOCK HAVEN



QUAKERTOWN



KENNETT SQUARE



MIDDLETOWN



## Locations

Our facilities are strategically located to serve our customers throughout our region.





An aerial, top-down view of a utility site. Several workers in high-visibility vests and hard hats are visible on the ground. A large white utility vehicle with a long boom is positioned in the center. The scene includes paved areas, grass, and various pieces of equipment. The overall image has a dark, semi-transparent overlay.

FUNDAMENTAL #1

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**THINK SAFE, WORK SAFE**

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An aerial photograph of a utility crew working on a street. A bucket truck is positioned on the road, with its bucket extended. Several workers in high-visibility vests and hard hats are visible on the ground. The scene is overlaid with a semi-transparent dark grey layer containing white and yellow text.

**THINK SAFE, WORK SAFE**

**EMR – 0.937**

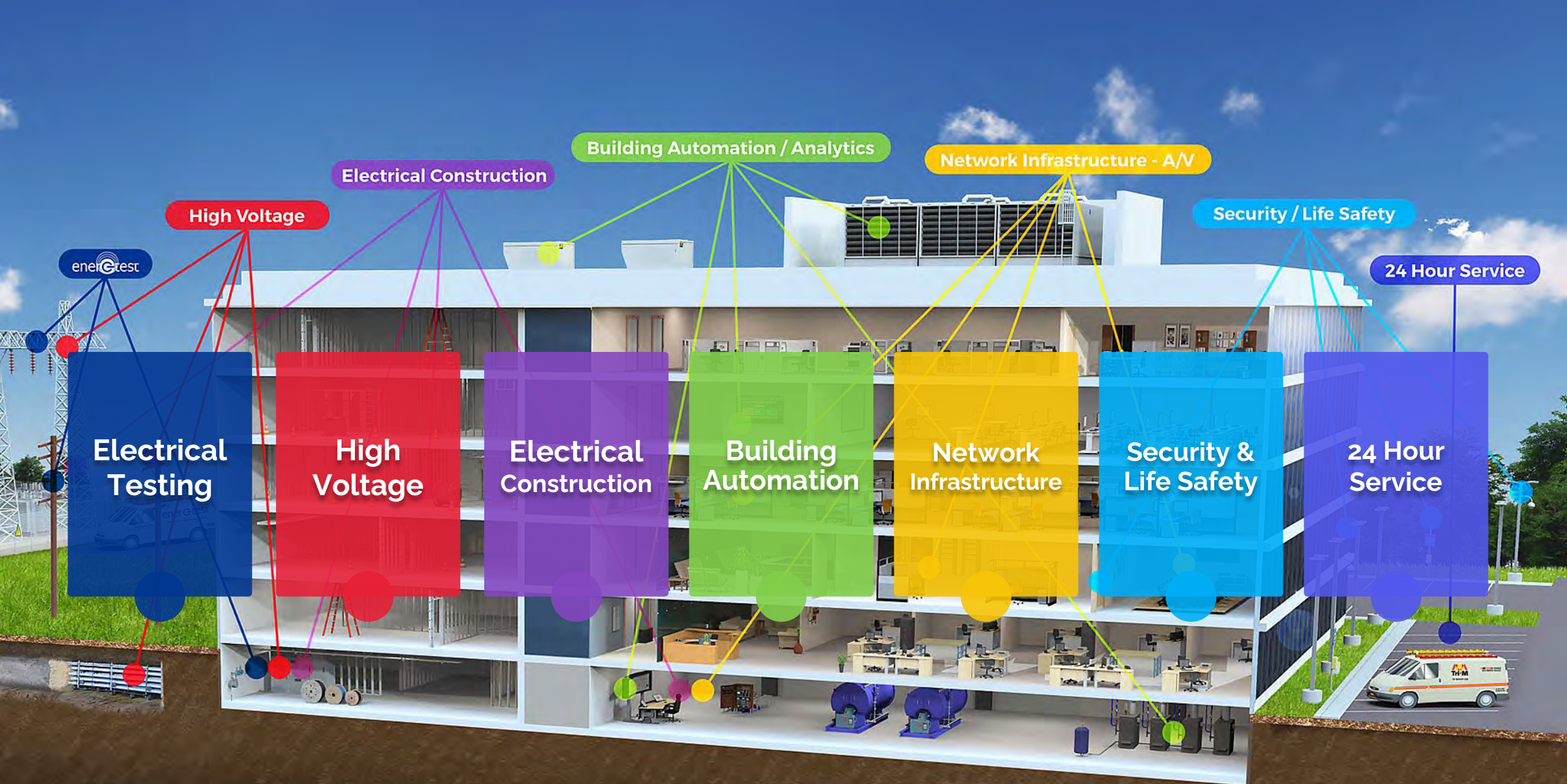
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**LTIR/DART – 0.185**

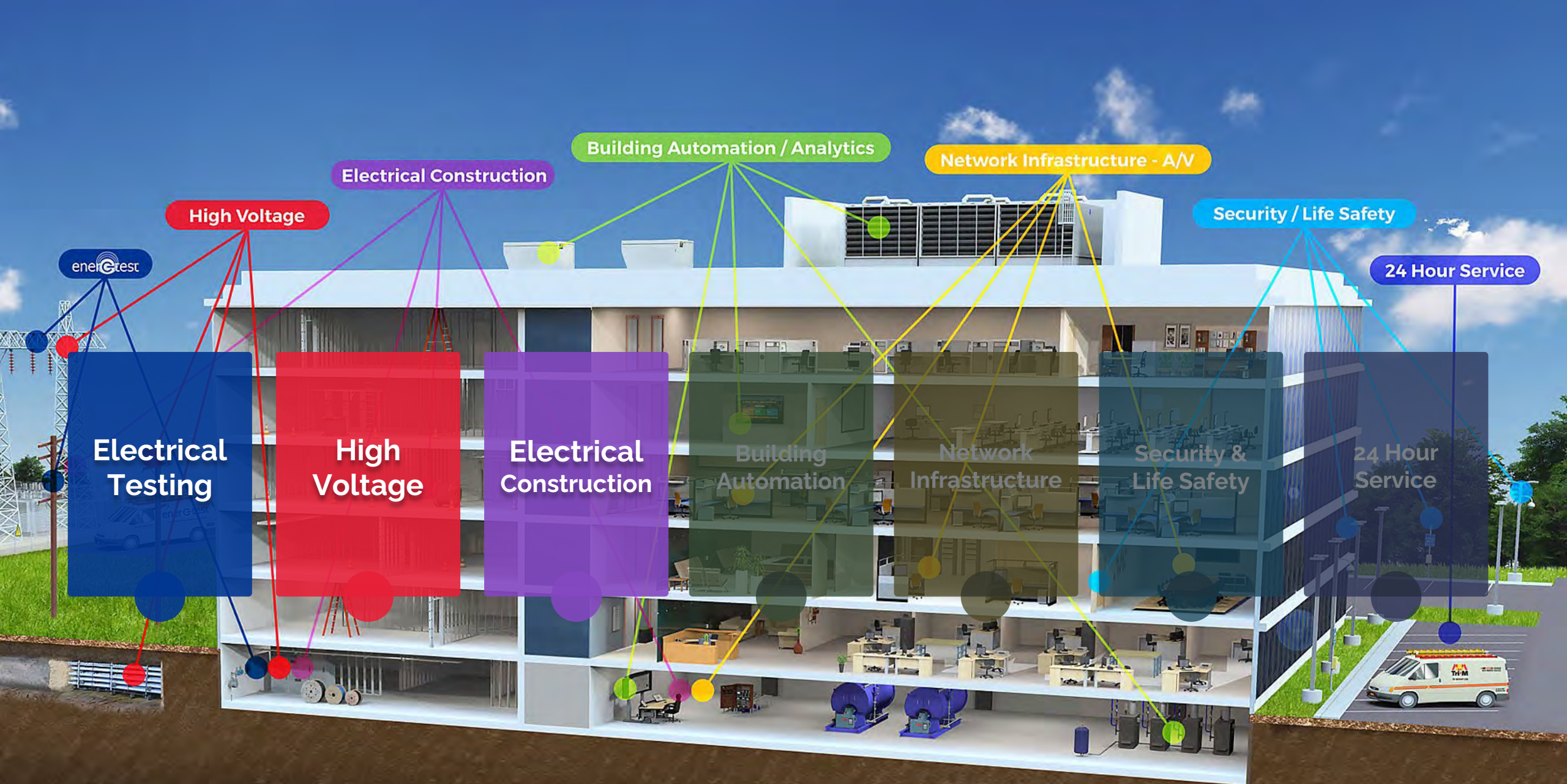
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**TRIR – 0.55**











# Our Customers



An Exelon Company





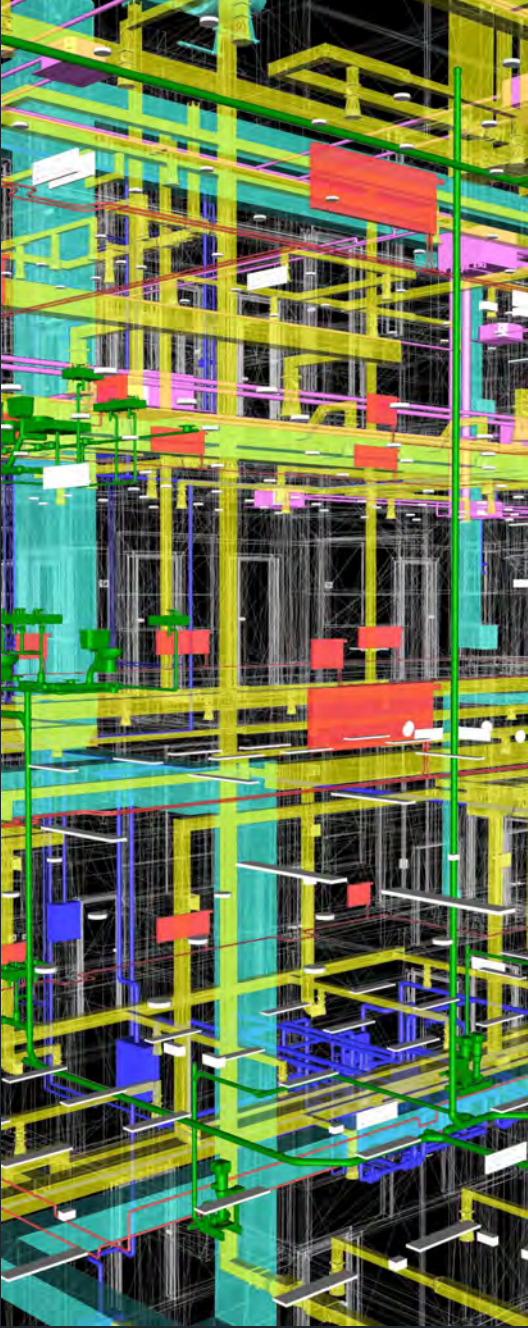


SERVICES & CAPABILITIES

# ELECTRICAL CONSTRUCTION

PRE-CONSTRUCTION – PRE-FABRICATION – CRITICAL POWER – SERVICE





# Pre-Construction Review

Before construction, Tri-M assists your team in the concept phase to review feasibility and suggest cost and time saving solutions.

- Conceptual Phase Consult
- Engineering & Feasibility Review
- Evaluate Pre-fabrication Opportunities
- Manpower & Scheduling Management Overview
- Early Switchgear & Equipment Order Release







# Dedicated Facility for Pre-Fabrication

## ▶ Engineering & Design

- Experienced In-House Engineering Team
- Recommend Materials, Methods, and Pre-Fab Opportunities

## ▶ Dedicated, Off-Site Assembly Facility

- Quakertown, PA – 60,000 sq/ft Pre-Fab Facility
- Keep Jobsites Leaner & Uncongested
- Manage Costs, Waste, Timelines and Workforce

## ▶ On-Demand Delivery

- Materials & Equipment When Needed
- Off-Site Storage Until Installation

## ▶ Installation

- Streamlined Installation Process
- Safer, Controlled Install Environment
- More Cost Effective





# Design & Installation of Lighting Systems

- Controlled Lighting Systems
- Overhead & Task Lighting
- Site & Emergency Lighting



# Power System Distribution

- Complex Conduit Runs
- Panels, Outlets, Wiring
- Analytics, Power Management





# Mechanical Systems Power Distribution

- Central Utility Plants
- Variable Frequency Drives
- Load Management



# Power Installation for Data Networks

- Data Center Power
- Network Cabling / POE
- UPC Backup



- Surveillance Camera Power
- Access Control Systems
- Alarm Systems



# Power Installation for Security & Life Safety Systems



# Fire Alarm Systems

- Fire Detection Systems
- Smoke & Heat Detectors
- Fire Alarm Communications





# Installation & Maintenance of Critical Power Solutions

- Uninterrupted Service Solutions
- Trained AC/DC Expert Technicians
- Engineering & Design/Build
- Equipment & Infrastructure Installation
- Preventative Maintenance
- Start-Up & Testing



# Design, Installation & Maintenance of **Renewable Energy**



- Solar Installation & Service
- Up to 5 MW Solar Farms
- Wind Turbine Power & Service



An aerial photograph showing utility workers in safety gear operating bucket trucks to maintain power lines. The scene includes a large truck with a long white boom, several workers in green and blue safety vests, and a utility vehicle on the ground. The background shows a mix of asphalt, grass, and trees.

SERVICES & CAPABILITIES

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# HIGH & MEDIUM VOLTAGE

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TRANSMISSION – DISTRIBUTION – UNDERGROUND – STORM RESPONSE



# Electrical Engineering

- ECP for Your Project
- Including ALL Make-Ready Work & Staking for New Pole Line Installation
- Fiber Cabling Make-Ready
- Fiber for Substations





# High Voltage Transmission

Construction & Maintenance of Overhead High-Voltage Transmission Lines from 69kV to 500kV

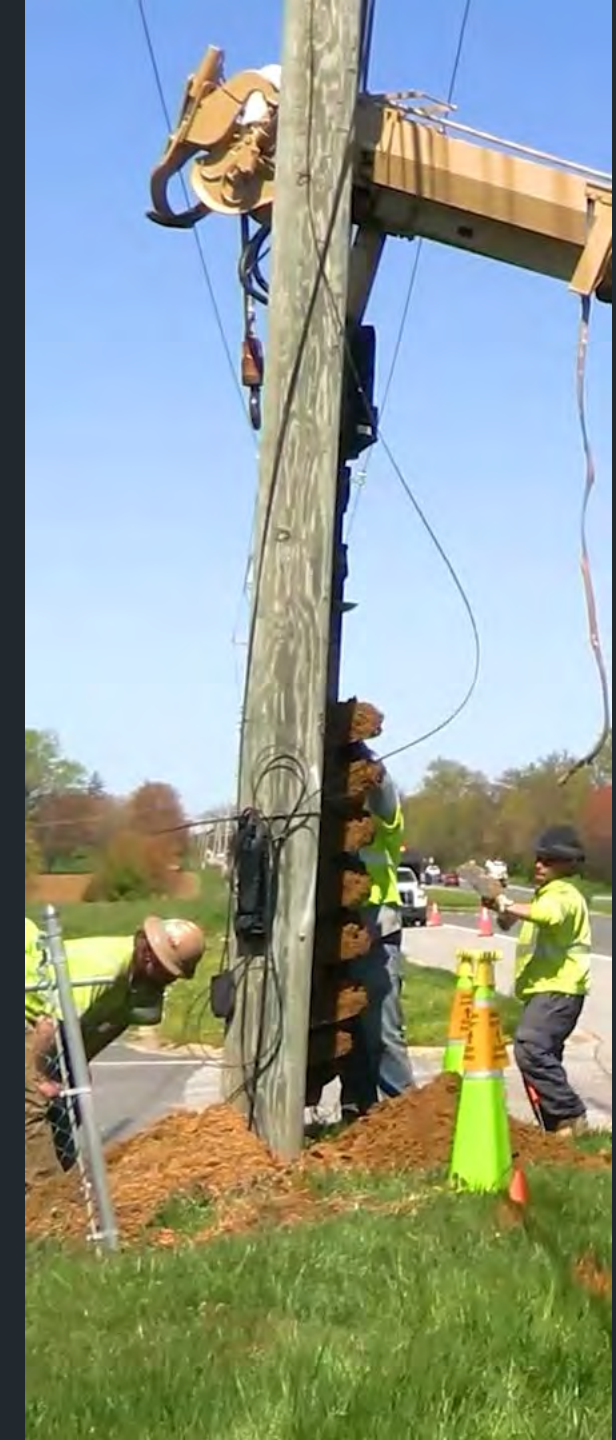
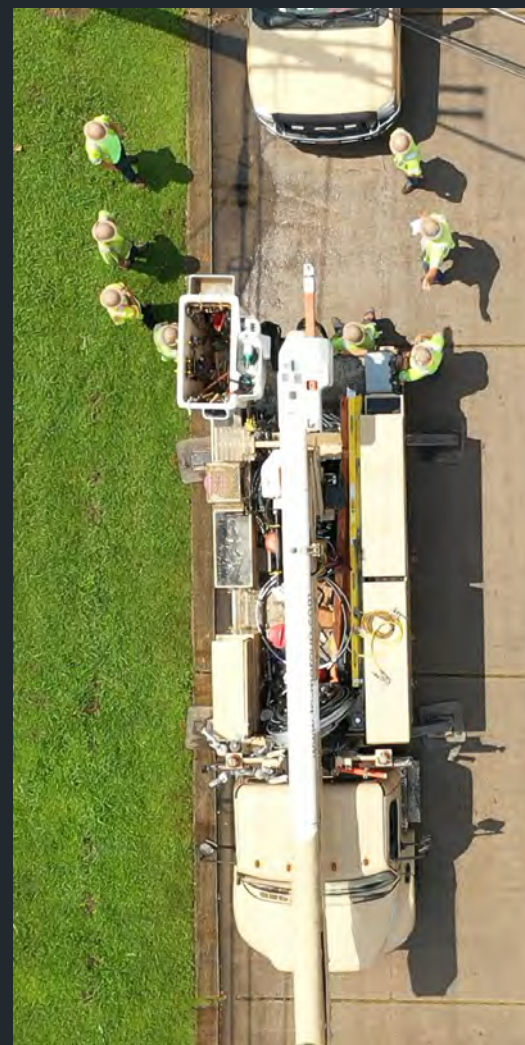
We install and service power lines and infrastructure for many of the region's top utilities, electrical cooperatives, municipalities, and industries. Tri-M is known for safe, innovative solutions that exceed customer expectations.





# High Voltage Transmission

- Pre-Construction Design
- Engineering Consulting
- Live Line Maintenance
- Pole Installation / Repair
- Wire Stringing, Sagging, Clipping & Dead-ending
- Safe Work Clearances
- Proper Grounding
- Certified Hot Glove Work (up to 34 kV) and Hot Stick Work (up to 34 kV)
- Energizing & Testing
- Preventative Maintenance
- Environmental Compliance





# Medium Voltage Distribution



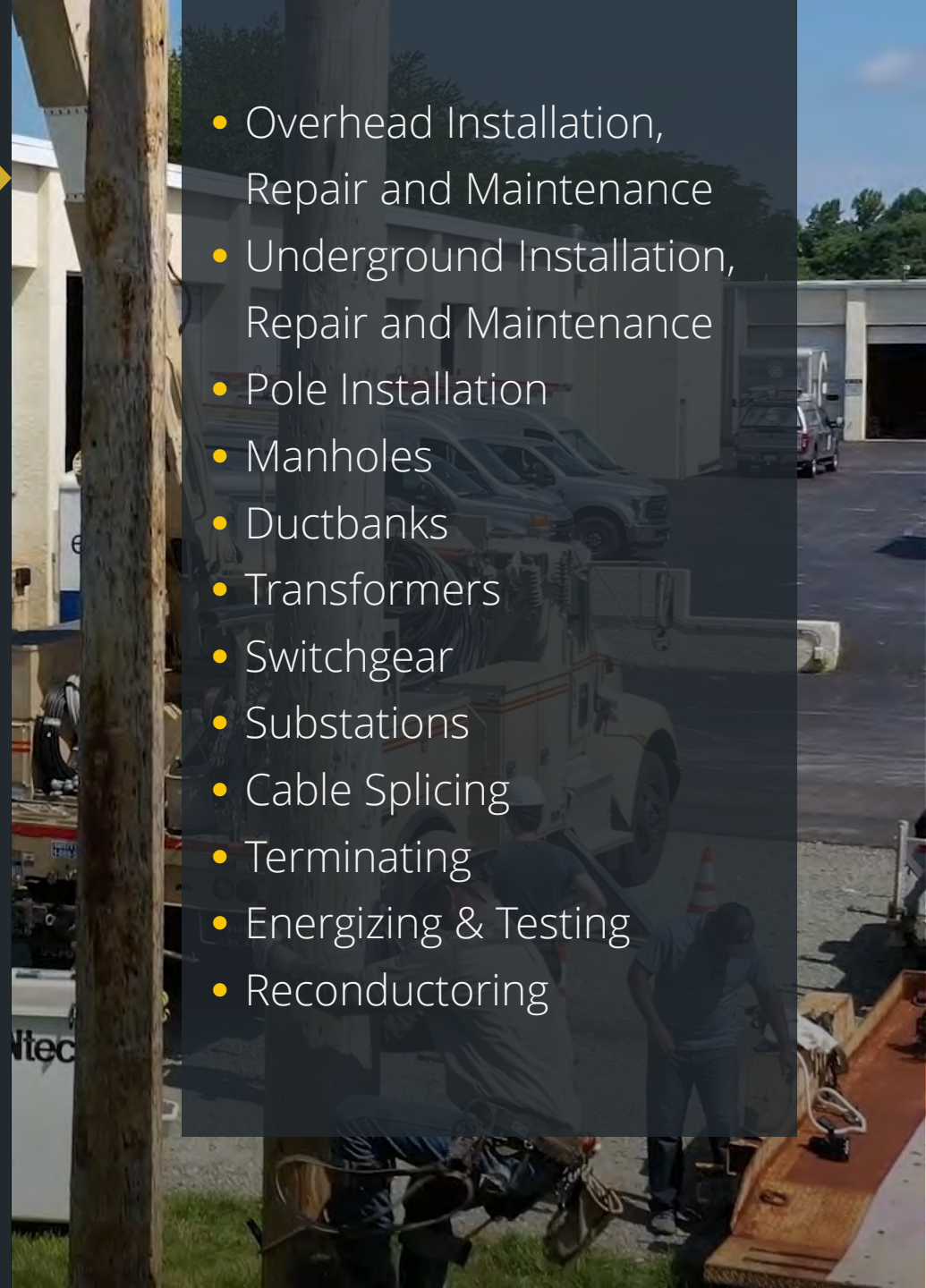
Construction, Installation & Maintenance  
of Overhead & Underground Medium-Voltage  
Distribution Lines from 4kV to 69kV





## Medium Voltage Distribution

- Overhead Installation, Repair and Maintenance
- Underground Installation, Repair and Maintenance
- Pole Installation
- Manholes
- Ductbanks
- Transformers
- Switchgear
- Substations
- Cable Splicing
- Terminating
- Energizing & Testing
- Reconductoring





# High & Medium Voltage Underground

Construction, Installation & Maintenance  
of Underground High & Medium Voltage  
Distribution & Transmission Lines from  
4kV to 69kV



# Medium Voltage & Secondary Underground

## ▶ Detailed Underground System Design

- Pulling Calculations, Ampacity Studies
- Feasibility Studies & Engineering

## ▶ Duct Bank

- Prefabrication Services
- Trench & Bedding Preparation

## ▶ Cable Pulling

- Reel Handling Equipment & Expertise
- Pulling Equipment & Expertise

## ▶ Splicing & Termination

- Sheath Bonding & Grounding
- Commissioning & Testing





- Turn-Key Installation of OH, UG and Network Backbone
- SCADA Substation Loop Installation for Automation
- Pole-to-House Installations
- Splicing

## Network Backbone Fiber Cabling





# Emergency Storm Response

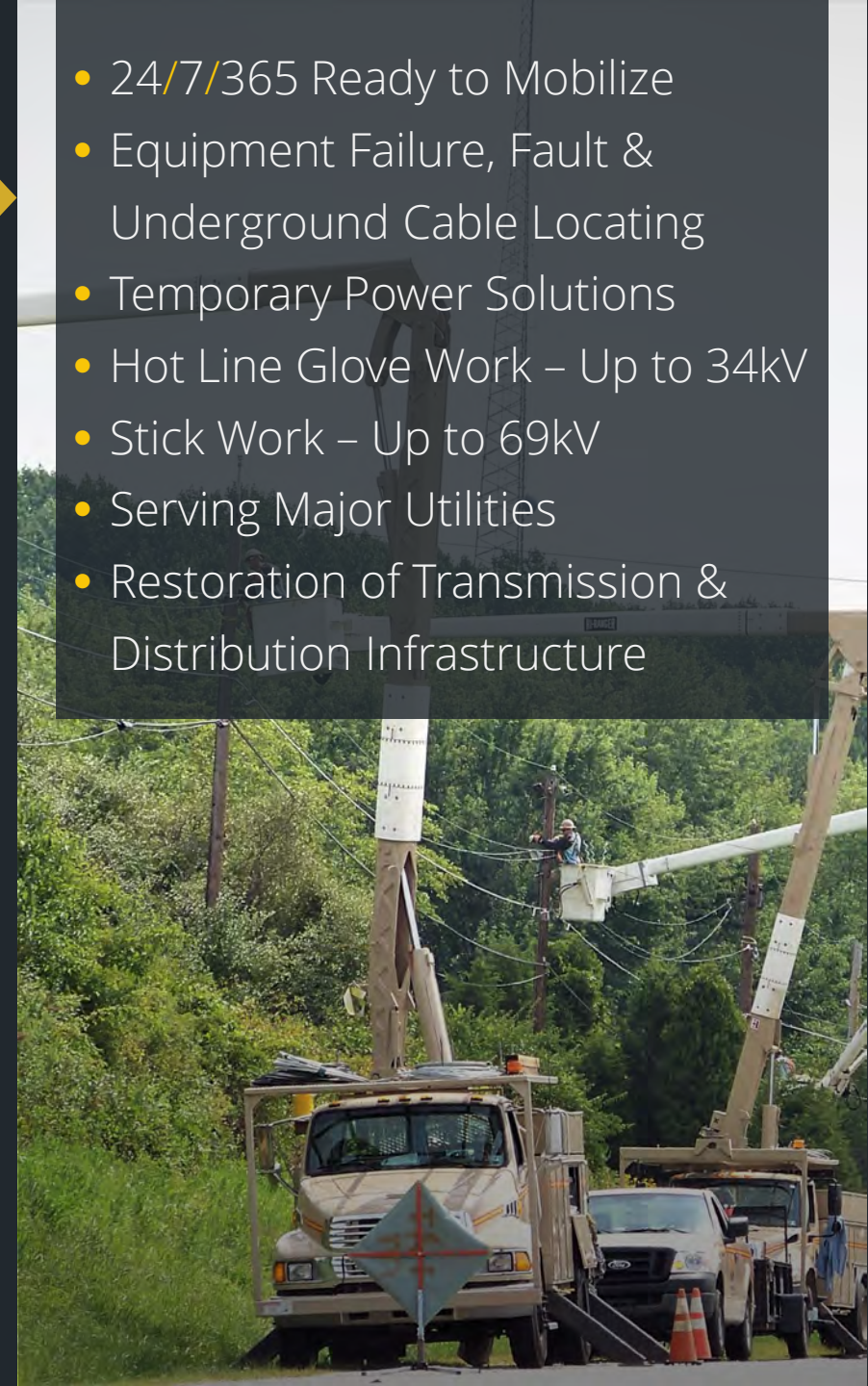
Tri-M mobilizes our highly experienced crew to rapidly deliver assistance to storm affected areas; delivering safe, reliable performance, even under the most adverse circumstances.



# Emergency Storm Response



- 24/7/365 Ready to Mobilize
- Equipment Failure, Fault & Underground Cable Locating
- Temporary Power Solutions
- Hot Line Glove Work – Up to 34kV
- Stick Work – Up to 69kV
- Serving Major Utilities
- Restoration of Transmission & Distribution Infrastructure







**SERVICES & CAPABILITIES**

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# **SUBSTATIONS**

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**DESIGN – CONSTRUCTION – UPGRADES – MAINTENANCE**



Construction, Design/Build and Commissioning of Substations and Related Equipment. Solutions for Utilities, Municipalities, Electric Cooperatives, and Industrial Customers from up to 500kV.

# High Voltage Substations





# High Voltage Substations

- Substation Installation, Upgrades & Repairs
- Pre-Construction Design
- Engineering Consulting
- Design/Build
- Commissioning
- Maintenance
- GIS, SVC and HVDC Installation
- Steel Erection
- Bus Welding
- Equipment Installation
- Switches, Breakers, SCADA and Control Panels







SERVICES & CAPABILITIES

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# ELECTRICAL TESTING

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TESTING & COMMISSIONING



Rest easier knowing EnerG Test provides fast, quality service that delivers reliable, optimized performance of your electrical system.

# High & Medium Voltage Electrical Testing



**EMPOWERING BUSINESS WITH SMARTER FACILITIES**





# Acceptance & Maintenance Testing



## Transformer Testing

- Turns Ratio | Excitation | Power Factor (Doble)
- Failure Analysis
- Custom Installations



## Cable Testing

- VLF Cable
- DC Hipot
- Tan Delta



## Switchgear, Circuit Breaker & Disconnect

- Low/Med/High Voltage Testing/Reconditioning
- SF6/GIS/Vacuum | Air/Vacuum Contactors/Starters
- Testing, Repair, Retrofitting, Reconditioning, Replacement & Custom Installations



## Protective Relay & Metering Testing

- Relay Testing & Upgrades
- Meter Calibration





# Acceptance & Maintenance Testing



## Ground Grid Measurements

- Ground Impedance Measurement Methods
- Touch and Step Voltage Measurements
- Soil Resistivity Measurement



## Auxiliary & Control System Testing

- Inspection & Verification
- Functional Testing



## Fluid Handling & Retro-fill Capabilities

- Reduce Fire Risk
- Avoid Risk of Environmental Contamination
- Demonstrate Corporate Social Responsibility
- Increase Transformer Life



## Power Quality Monitoring

- Detect Disturbances
- Prevent Interruptions





# Acceptance & Maintenance Testing



## Thermography

- Infrared Scanning
- Infrared Analysis & Solutions



## Battery Testing

- Forecast Failure
- Detect Deterioration



## Oil Sampling

- Insulating Fluid Sampling
- Insulating Fluid Analysis & Solutions



## Troubleshooting

- Fault Detection
- Power Analysis



# High Voltage Apprenticeship Program

## MODULE 1

- Intro to Power Delivery
- Safety 1
- Working in Elevated Positions
- Knots, Splices, and Rope
- Electrical Systems
- First Aid
- Applied Mathematics
- Basic Electrical Theory
- Transformer Basics
- OSHA 1

## MODULE 2

- Safety 2
- AC Fundamentals
- Personal Protective Grounding
- Live-Line Equipment & Methods
- Rigging
- Underground Conductors
- Overhead Conductors
- Electrical Test Equipment
- Intro to Substations
- OSHA 2

## MODULE 3

- Safety 3
- Special Elements 1
- Metering
- System Power Flow
- Advanced Transformers
- Maps & Standards
- System Protection
- NESC 1
- NESC 2
- OSHA 3

## MODULE 4

- Safety 4
- Communications Systems
- Special Elements 2
- Vegetation Management
- System Operation
- System Automation
- Overhead Line Design
- Underground Line Design
- Trouble Investigation
- Crew Leadership



# 24 Hour Customer Service

**1 Hour**  
Phone Response

**4 Hours or Less**  
On-Site Guarantee



## Phone Response

A live person answers our service line 24 hours a day. Then our service team responds in 1 hour.



## On-Site Response

On-call technicians can be on-site responding to your emergency within 4 hours...day or night.







A technician with a beard, wearing a yellow hard hat with an American flag sticker and safety glasses, is focused on a server rack. The rack is filled with various electronic components and cables. In the foreground, a laptop is open, displaying a software interface with charts and data. The scene is set in a server room or data center.

SERVICES & CAPABILITIES

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# BUILDING AUTOMATION

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CLIMATE, LIGHTING & ENERGY SYSTEM DESIGN, INSTALL & INTEGRATION





# Remember Your First Smart Phone?

**2001**

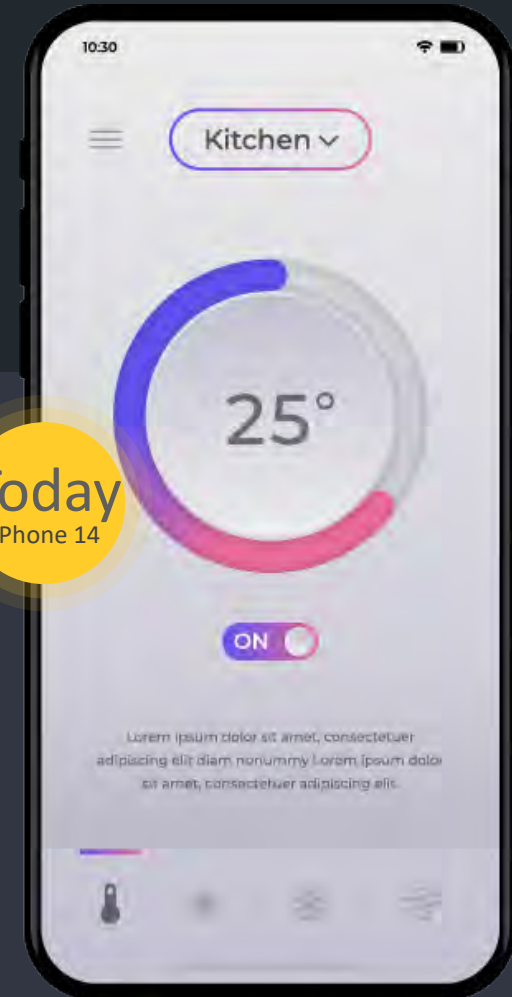
Phones Meet the Internet

**2007**

First iPhone Released

**Today**

Smart Phones are Indispensable in  
both Personal & Business Life





# From Smart Phones to Smart Homes

## Is your home smart?

Virtual assistants like Siri, Google Home and Alexa are helping make homes more intelligent for a much smaller investment today. Also, no need to gut things down to the studs with the new IoT technology.

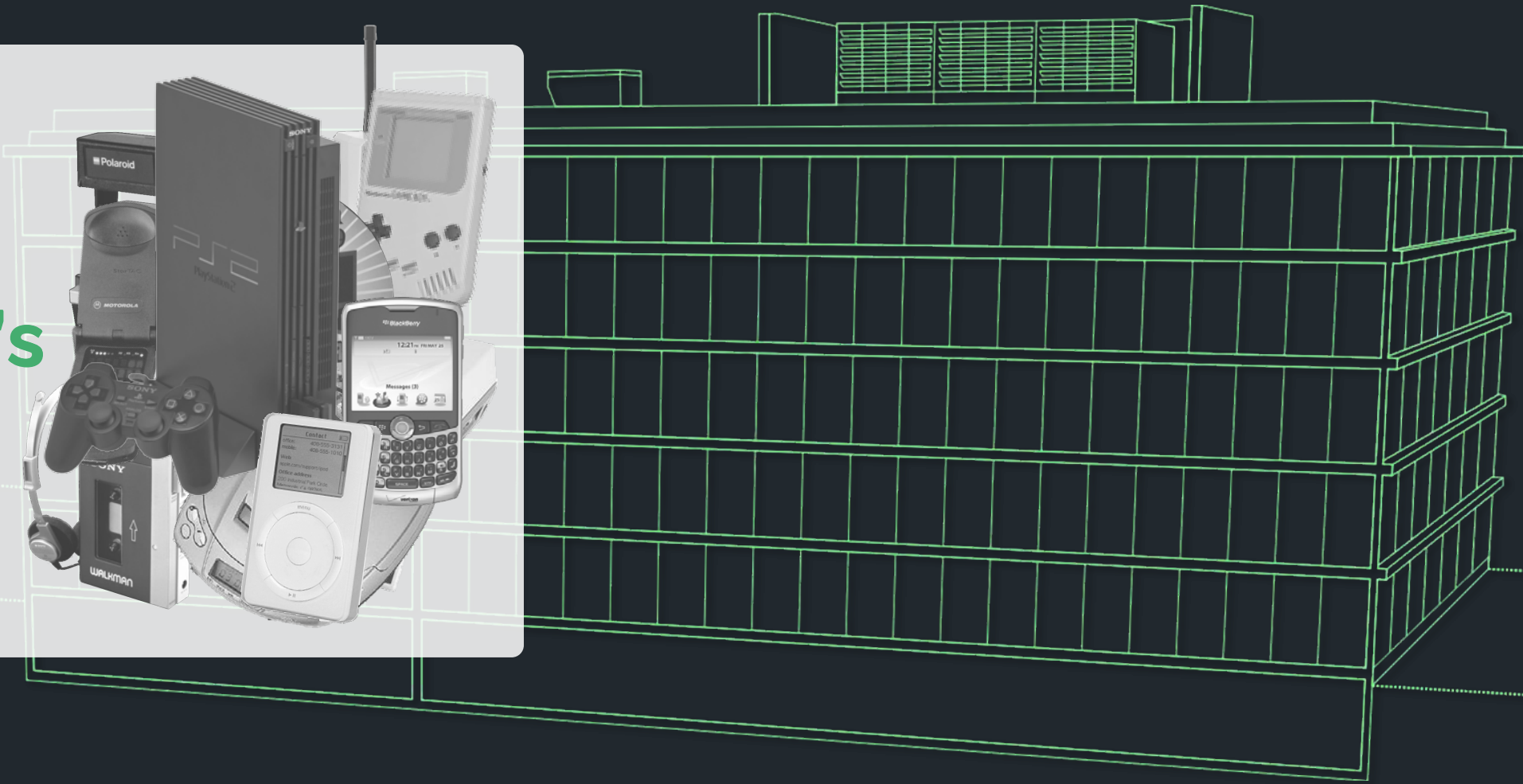
**You don't have to be rich to have a smart home!**





So, just how smart is  
**Your Facility?**

2000's







Prepare your facility for today and tomorrow with

# EcoStructure™

Yesterday's buildings were not built for today's challenges. EcoStructure provides your facility or campus with everything your business needs to be successful and efficient today, along with the flexibility to face tomorrow.

[Why Now?](#)

[Why EcoStructure?](#)

[Technical / Q&A](#)







# Future-Proof Your Building



## Keep Pace with Evolving Technology

Current Software and Network Controllers are stuck in the 2000s. How many times have you replaced your PC or cell phone since 2003?



## IT Requirements for Cybersecurity

Older systems struggle to meet most modern IT security requirements. EcoStruxure provides the protocols needed to reduce cyber threats.



## Maximize Building Efficiency & Comfort

Ensure your systems are optimized to save energy and reduce costs. Maximize productivity by keeping occupants and employees comfortable and focused.



## Eco-Friendly Facilities Add Value

Energy and environmental conscious facilities will stay ahead of regulation compliance and keep up with eco-friendly expectations.



The Drive for Robust, People-Centric, Future-Proof

# Information-Based BAS

Access to More Information



Improved Performance



Cybersecurity & Compliance







# Go with today's leader in BAS...

# EcoStruxure™



## Open, Scalable, Secure IoT Solution

A next-generation solution that features a scalable, secure, global architecture to create smart buildings that are future-ready.



## More Information & Better Performance

Manage and optimize assets with greater levels of information, and the ability to analyze that data at the speed of today's business environment.



## Responsive Vector Graphics

High resolution, scalable, and animated vector graphics deliver a clear view of your system's status regardless of the screen size.



## Web Accessibility

Stay connected, anytime...anywhere. If you have a connection to your company's VPN (and the web) users can login online to monitor systems.

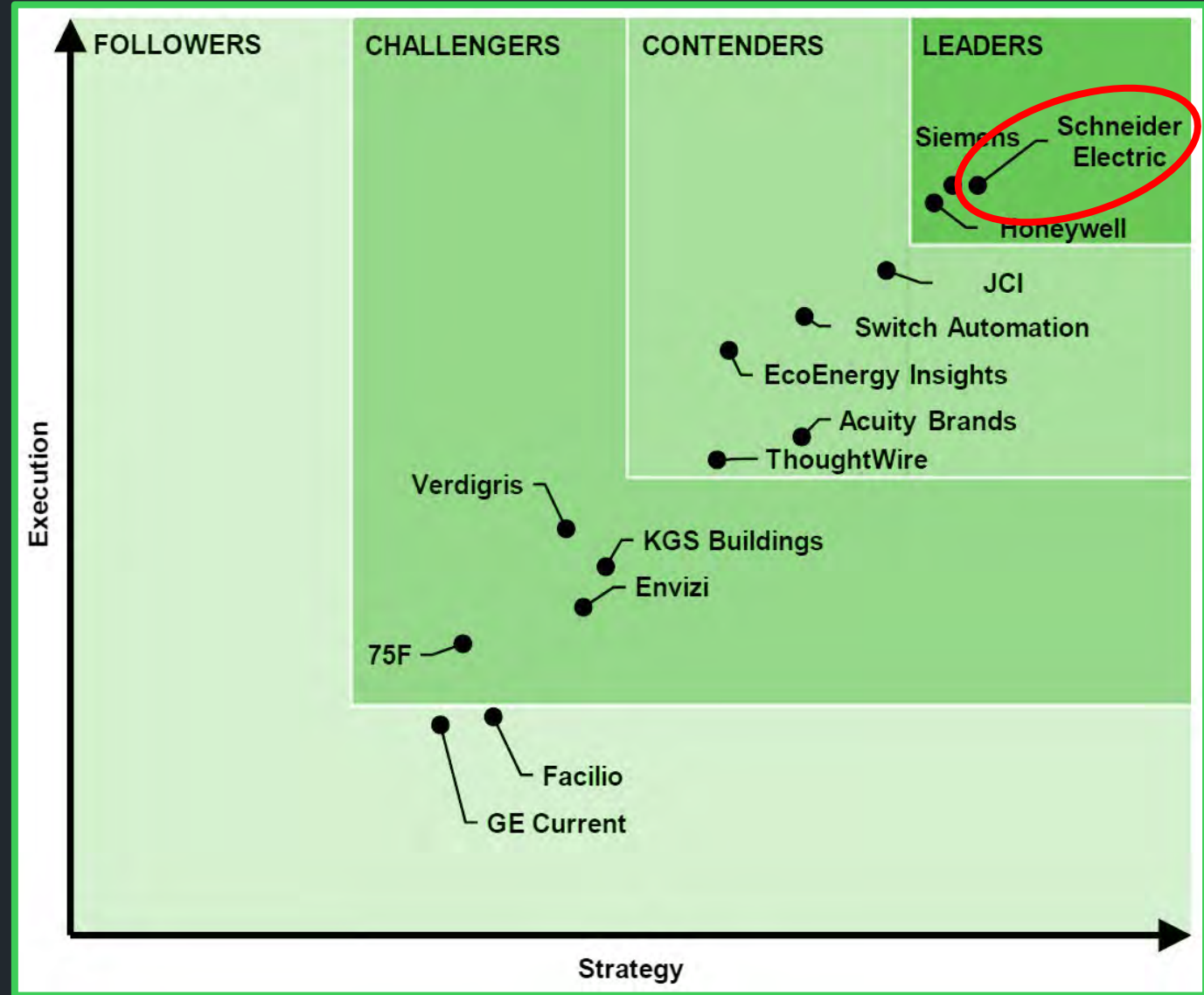




## The #1 Ranked Building Energy Management System

“Schneider Electric is well positioned to be the provider of choice for emerging IoT and predictive analytics building performance software and capabilities. The company’s software ranks at the top for its strong vision, go-to-market strategy, and partnerships.”

-- 2020 Global Insights Leaderboard:  
Intelligent Building Software





EcoStruxure

# References





Is Your Facility Ready for a Technology Refresh? Let us help with a...

# Proven Upgrade Path

## Plan Phases to Fit Customer Needs

- Budget
- Occupant Needs
- Facility Strategy
- Timeframe



## Preserve Investment

- Retain Field Controllers
- Keep Wiring & Devices
- Copy Programming
- Same Sequences



## Upgrade Software & Network

- Upgraded Graphics
- Latest Windows OS
- Improved Security
- Phased Migration



## DEPLOY

- Secure & Scalable
- Cost Effective
- Future-Ready
- Resilient End-to-End IP Architecture







SERVICES & CAPABILITIES

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# SECURITY & LIFE SAFETY

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ACCESS CONTROLS, SURVEILLANCE, EMERGENCY CALL & MORE



# WE LEAD WITH SAFETY

- Access Control
- Mustering Reporting
- Electronic Door Hardware & Integrated Locksets
- Intrusion Detection
- Video Surveillance
- Cameras
- Patient Detection & Wander Management
- Emergency Call Stations - Blue Phones
- Visitor Management
- Central & Remote Monitoring
- Turnstiles & Security Gates





# ACCESS CONTROL



- Card Reader
- Request to Exit (REX)
- Door Position Switch (DPS)
- Emergency Egress Button (EEB)
- Locking Hardware – Mag, Strike, Electronic Latch Retraction, etc.



# INTRUSION DETECTION SYSTEM (IDS)



- PIR Motion Sensors
  - 360 Degree vs Single Point
- Beam Detector
- Door Position Switch (DPS)
- Panic / Hold-Up Button
- Tamper Sensors - Picture Sensor, Plugger Type
- Vibration Detector
- Glass Break Sensors
- Keypads
- Intrusion Panel with Dialer – POTS, TCP/IP, Cellular



## SINGLE POINT

Dome vs Bullet



## MULTIPOINT

Dome



## PAN TILT ZOOM

Dome



# CAMERAS

Specialty Cameras

- Megapixel – MP – Used to note camera resolution & clarity.
  - Pixel Per Foot – Used to note clarity over distance.
  - POE – Power Over Ethernet – Power combined with Data over a Network cable.
  - Camera Analytics – Motion, Search, People Counting, Object Detection
- Thermal
  - License Plate
  - Explosion Proof

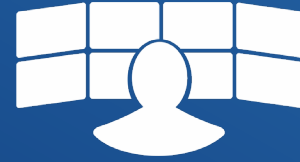


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**SECURITY & LIFE SAFETY**



# RECORDING DEVICES



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**SECURITY & LIFE SAFETY**



# PATIENT DETECTION WANDER MANAGEMENT

- Detect Whereabouts of a Patient / Resident
- Tag Detection Device – Excitor
- Tracking Tag, RFID-Sticker, Wrist / Ankle Bands



# EMERGENCY CALL

- Also Know As – “Blue Phones”
- Devices placed in various environments to automatically summon emergency response.



# CENTRAL MONITORING

- Remote Service Used to Receive Alarms
- Monitoring is 24/7/365
- Notification Received by Email / Mobile / Text





# VISITOR MANAGEMENT



- Log Personnel In/Out of a Facility Electronically Replacing Traditional Sign In/Out Sheets
- Turnstiles & Security Gates







SERVICES & CAPABILITIES

# NETWORK INFRASTRUCTURE

NETWORK & DATA CENTERS, SYSTEM DESIGN & SERVICE



Network Infrastructure

# Data Centers & Network Systems

CERTIFIED INSTALLATION & SERVICE

COMMSCOPE®

Berk-Tek

HILTI  
FIRESTOP

CORNING

LEVITON

Igor

LENCORE

SIEMON™

PANDUIT™

BELDEN

- Design Build Scalable Network Systems
- Certified Installation & Design Engineers
- Systems & Infrastructure Integration



# Network Infrastructure Structured Cabling

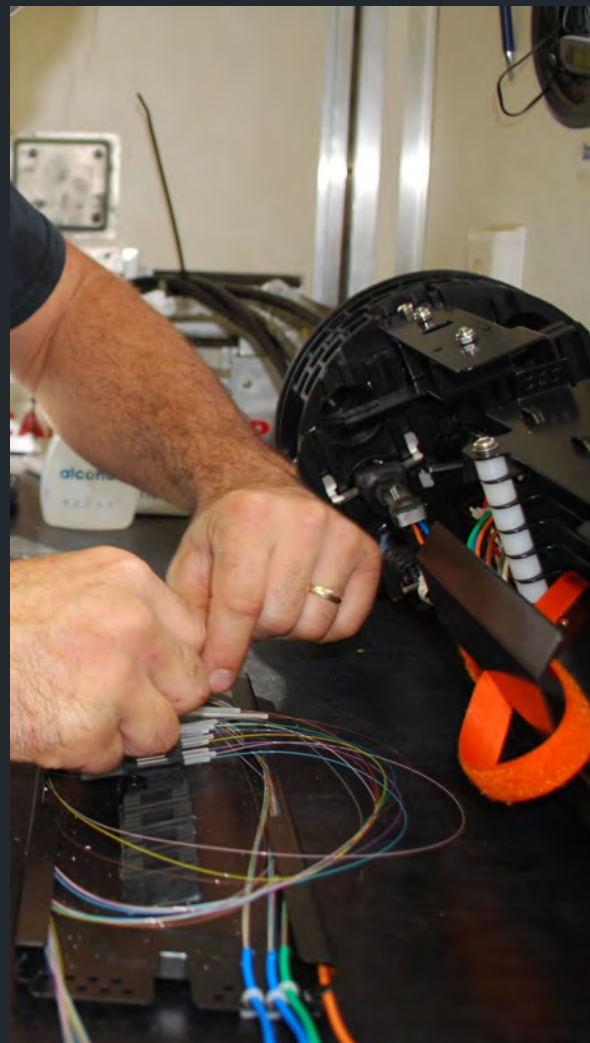


- Inside & Outside Plant
- Design, Installation & Repair
- Copper & Fiber Optic Network Cabling
- BICSI Certified – ANSI/TIA/EIA Standards



# Network Infrastructure Fiber Optic Systems

- Design & Installation
- Splicing & Repair
- Underground & Aerial
- Mobile Fiber Splicing Trailer
- Testing Equipment
- Corning Cable Systems Preferred Installer





Network Infrastructure

# Fiber Optic Splicing & Repair

- Bucket Trucks & Manhole Equipment
- Splicing Trailer & Testing Equipment
- Confined Space Equipment



Network Infrastructure

# Electric Vehicle Charging Stations

Tri-M can provide electric car charging installations to meet your facility's needs. We safely perform all aspects of installation, including electrical power distribution, panel upgrades, rewiring services



# 24 Hour Customer Service

**100+**  
BAS Employees

**25**  
Technicians

**1 Hour**  
Phone Response

**4 Hours or Less**  
On-Site Guarantee



## BAS Employees

Tri-M's Building Automation team is comprised of over 100 professionals intent on meeting your needs.



## Technicians

Our technicians receive extensive safety and skills training to ensure your issue is handled properly.



## Phone Response

A live person answers our service line 24 hours a day. Then our service team responds in 1 hour.



## On-Site Response

On-call technicians can be on-site responding to your emergency within 4 hours...day or night.





# Personalized EcoStruxure™ Training



## Tri-M Training Center

Come to us and receive hands-on, in-depth training. Located in Kennett Square.



## On-Site Training

Tri-M trainers come to your facility and provide instruction on operating your system.



## Virtual Training

Tri-M trainers connect with your team via livestream to provide virtual instruction.





# Keep In Touch

Thank you for the opportunity to share our services.

Jim O'Farrell 717.758.2168

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THANK YOU  
Q & A