

Why Engineering Document Management Is Critical for Your Utility's Future

Synergis
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UTILITY DIVE

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Are key departments across your utility disconnected from each other, with no easy way to empower collaboration or automate workflows?

Do essential documents for engineering, operations and maintenance (O&M), emergency response, protection and controls, transmission and distribution, construction and capital project management all reside in separate silos?

Does your workforce waste time tracking down the latest version of any document they might need?

Utility professionals should be able to rely on this level of access, alignment and efficiency, but too often, the reality falls short. This gap leads to costly errors and delays and can jeopardize safety and reliability.

With a powerful and adaptable engineering document management (EDM) platform, utilities can optimize every aspect of operations, from design and construction to maintenance and emergency response. Integrating EDM into systems and workflows helps streamline collaboration, strengthen security, promptly address emerging issues and improve reliability.

Utilities that use EDM enjoy better alignment across teams, enhanced collaboration and accountability, reduced risks and errors, lower costs and accelerated projects.

This playbook shows how utilities, including Con Edison, Eversource Energy, Great River Energy and Hoosier Energy, are reaping the rewards of EDM. It presents strategies that can help your utility build the case for EDM and deploy a solution tailored to your unique needs.



10 ways your utility can benefit from EDM

1. **Centralized source of truth.** EDM provides a centralized platform for document access and control that connects your teams and ensures everyone is on the same page, while driving standards and best practices.
2. **Fast access to the right version.** Easy access to the latest document version reduces safety and reliability concerns, change orders, compliance issues and wasted time.
3. **Workflow automation.** The organization is more efficient when documents flow through the correct processes automatically. Time-based alerts and notifications help to identify bottlenecks, so work is completed on time.
4. **Seamless CAD integration.** Having EDM available right inside your CAD application enhances design workflow, while maintaining file relationships.
5. **Visualization and markup.** EDM makes it easy for those on the plant floor or in the field to find, view and markup virtually any document including drawings, models, office documents and graphics files. They can communicate feedback, changes and ideas from a computer or mobile device, whether on or offline, day or night.
6. **Enhanced security and traceability.** Enjoy greater confidence in the availability, integrity and confidentiality of your data — while meeting compliance requirements.
7. **Lower costs.** Delivering the right information to the right people at the right time reduces emergency repairs, change orders, fines and other costly problems.
8. **Increased safety and reliability.** 24/7 access to accurate documents and drawings streamlines routine or emergency operations while reducing accidents, outages and liability.
9. **Better return on investment (ROI) on capital projects.** EDM can enhance project planning, budgeting and outcomes to satisfy expectations from regulators, shareholders and stakeholders.
10. **Simplified compliance.** Automating and streamlining processes for regulatory compliance helps utilities meet deadlines, avoid fines and reduce administrative overhead.

How Con Edison optimized utility operations and reduced risk through EDM

For decades, Con Edison relied on a heavily customized EDM system. As the utility's needs evolved, functionality challenges grew. Eventually, the original system neared the end of its useful life. It was time for a strategic technology shift.

"We realized we needed to move to a system that was more off-the-shelf," said Horace Davis, general manager for central engineering services at Con Edison. "Every time something changes, we don't want to have to ask a vendor to do yet another costly customization."

Con Edison chose the Adept EDM solution from Synergis Software. The system now supports more than 3,000 users across central engineering, gas operations and electric operations, with plans to expand into additional business units on Staten Island and elsewhere.

"We really use Adept for drawing management, which is a subset of document management," Davis clarified. "We can't do anything in engineering if we don't have the latest drawings associated with work that needs to happen. This applies across the spectrum — from design to construction and configuration to O&M, and even to addressing emergencies."



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Con Edison realized several additional benefits of their EDM upgrade, including:

- **Speed and reliability.** Fast access to the most current and accurate drawings saves time. Donal Fortune, section manager for central engineering, explained, “On any given day, we have crews dealing with problems in the field. The EDM system must be there for them every time, regardless of where they’re working at the moment.”
- **Traceability.** Adept’s built-in security and traceability includes recording user activity and controlling document access. “We record which user checks a document out, which changes were made and when they checked the document back in,” Davis explained. Reviewing edit history also helps Con Edison understand opportunities to improve processes and workflows.
- **Safety.** Keeping workers and the public safe is a paramount utility consideration. “When you have a trip-out or other system condition, and you’re trying to identify the configuration of the part of the system involved, fast access to the correct and latest drawings helps keep everyone safe,” said Davis.
- **Flexible application integration.** Thanks to integrations with applications such as CAD and ESRI, Con Edison can automate data and workflows from design to deployment to field work, and across their entire IT infrastructure. This improves overall efficiency and data integrity.

- **Audit readiness.** Each year, Con Edison conducts an internal self-assessment and a series of audit exercises to confirm compliance with NERC CIP (the critical infrastructure protection standards issued by the North American Electric Reliability Corporation). Adept's built-in tracking creates a useful audit trail. Fortune explained how this pays off. "Down the line, a regulator or inspector might ask, 'I'm not sure what I'm seeing here, can I look at the drawings to go with that?' It's easy and fast for us to supply those professionals with the information they need," said Fortune.
- **Future proofing.** Con Edison needed an EDM solution that will continue to adapt as the utility evolves. "Our processes definitely will keep changing over time," said Fortune. "Our system will support our future work, through cloud computing and other capabilities."
- **Security and access control.** It's crucial for Con Edison to ensure their engineering drawings are secure and that they have tight, granular control of user access rights. "Being able to set access criteria and preferences for specific drawings in our suite was a make-or-break selection criteria for us," Davis emphasized. "We must control access for our vendors and contractors, as well as our own employees." Fortune noted that permissions management is now much easier with a single platform for all the utility's drawings.

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An essential starting point for Con Edison's EDM upgrade was a comprehensive needs assessment. This involved gathering perspectives and a list of existing pain points across central engineering to identify gaps and inform product requirements.

"It's critical to get buy-in from the users before you even go out on the market to look for a solution," said Davis. "For instance, we needed early buy-in from our users about switching to an off-the-shelf system. This meant that existing work procedures that were not aligned with how Adept works would need to change. That's not something you want to force on people."

Due diligence was the next part of the process. As they narrowed in on a solution, EDM users from Con Edison visited other utilities that were using Adept. "We took our users out to see how an off-the-shelf EDM works in the real world," said Davis. "We spent a good amount of time talking to people at these other utilities, going over scenarios and asking questions about how EDM could address our needs. We got some very helpful feedback that supported consensus on our final selection."

Con Edison also engaged internal teams to assess the value and budget for a new EDM system. That engagement has continued, expanding adoption of Adept. "We're now using Adept for everything from design to operations and addressing emergencies. We make the benefits clear to everyone involved," said Davis.

How utilities of all sizes are leveraging EDM

Utilities of all sizes are leveraging EDM at scale to achieve diverse benefits. For example, Eversource, the largest energy delivery company in New England, relies on Adept to control documentation for their massive infrastructure. Adept manages more than 200,000 unique drawings for more than 600 substations across Connecticut, Massachusetts and New Hampshire.

Paul Melzen, director of substation engineering and design for Eversource, explained that the driving forces behind the utility's adoption of EDM were changes to NERC and Federal Energy Regulatory Commission (FERC) reliability criteria that created significant growth in capital projects. With so many transmission system upgrades underway, the workload to revise substation drawings increased dramatically.

"Implementing a document control system with a central file library enabled us to keep our schedules on track and prevent the loss of information," said Melzen. "EDM also helped us prevent multiple change orders with our large contract engineering and construction partners."

On a day-to-day basis, EDM also ensures good "data housekeeping." When the generation and transmission cooperative Hoosier Energy expanded its once-tiny design department, the old system of storing engineering documents in local files led to a version control crisis.





Bernie Voges, senior protection engineer at Hoosier Energy, said, “Whenever two people tried to work on the same file, we suddenly had two different files of the same version number. Data would get overwritten, and files were deleted accidentally. We needed a system that would act as a traffic cop to police our files.” He shared a story of an incident where one contractor installed some conduit, and another removed it. “This repeated until they realized they better consult the engineers for the correct version,” he said. “The consequence could have been much more dire — anything from blackouts, negatively impacted customers, or worse, someone actually getting hurt.”

At Great River Energy, a not-for-profit wholesale electric power cooperative in Minnesota, EDM supported a major business transaction. “We were selling a power plant. It turns out this is not like selling something on Craigslist,” said Blake Donley, principal systems analyst for Great River. “It’s an incredibly regulated and complicated endeavor that requires coordination between many departments.”

EDM enabled Great River to meet critical deadlines for transferring drawings to the group purchasing the power plant. “Without a system like Adept, that process would have been rather complicated,” said Donley. “Thankfully, the drawings were transferred in the proper amount of time.”

Best practices for EDM success

Utilities that have deployed EDM successfully offer valuable insights. Most importantly, adoption must be done intentionally and thoughtfully. **There are several steps utilities can take to select and deploy an EDM solution and maximize its benefits:**

- **Identify and engage stakeholders.** Identify departments that will benefit from EDM — consider substation engineering, transmission line, document control, protection and controls, maintenance, construction, field engineering, system operations and capital project management.
- **Involve key current and future EDM users.** In addition to engineers, this can include O&M, management, regulatory compliance, asset management, emergency response and other departments. Explain EDM's potential and encourage input to ensure the solution will deliver benefits that users will value.
- **Document your challenges.** Identify existing pain points in document control, traceability, access, visualization, collaboration and workflow. Examine how your engineering documents are currently created, stored and accessed. Understand how version control, permissions, tracking and audit response are currently handled. Document your workflow processes and methods for collaboration on documents.
- **Evaluate the costs and risks of inaction.** If the challenges above go unaddressed, what is that costing you? Do you need to lower your risk profile? Consider wasted time searching for the right information; the risk of a safety incident, compliance issue, outage or change orders due to poor document control; delayed projects, security concerns and field teams unable to respond to emergent situations; inefficient field feedback and project handover.
- **Identify the capabilities your team requires from any solution.** This will form the foundation for your requirements list and set expectations across the organization.
- **Gather baseline metrics.** Collect data on your current processes so you can measure success following EDM deployment. Focus on key metrics such as number of steps per process, resolution times and compliance costs.

- **Reality-check your shortlist.** Narrow down your options to one or two vendors with proven success with utilities. Ask to see demonstrations of how the product can be used to address your requirements and consider visiting a utility already using the product. Observe real-world applications, ask questions and assess benefits and tradeoffs.
- **Deploy the platform.** Work closely with your chosen vendor to align processes with your EDM platform. Pay special attention to data migration, understanding if it can be done with out-of-the box tools, or if it requires customization. If you're migrating

from another document management system, go deep with your provider to ensure they have the skills and experience to support your data migration.

- **Conduct training.** Train users on new workflows and monitor their experiences. Identify challenges and refine processes to enhance usability.
- **Keep growing.** Once the platform is integrated successfully, consider the many ways EDM can benefit other departments or use cases. As EDM expands, its value and ROI will continue rising.



Justification and Funding Options for EDM Software

EDM solutions are mission-critical to ensuring reliability, compliance, cost management, safety and more. By taking the time to explore a solution's potential ROI, along with the risks and potential costs of inaction, you'll find that justification is a relatively easy case to make. After all, preventing a single outage or safety incident could pay for the system in a matter of hours.

Utilities may also be able to secure local, state and federal funding for EDM by connecting the value of EDM to the ease, automation and accountability it affords utilities to make critical energy infrastructure improvements.

Programs such as the Department of Energy's **Grid Modernization Initiative** may offer funding for digital infrastructure, and the **Infrastructure Investment and Jobs Act** includes support for certain technology improvements. The U.S. Department of Agriculture, DOE and other state and federal agencies may also provide utilities with additional support for digital resources such as EDM to help improve and transform the nation's energy infrastructure.

In addition to sourcing the necessary funding, [a 2022 paper](#) by the Edison Electric Institute and Advanced Energy Economy offers other tactics utilities can deploy to recover the cost of software such as EDM:

- **Prepay for cloud solutions** and amortize that prepayment as you would an upfront investment in an on-premises system or other plant in-service.
- **Pay for costs periodically over time** based on cloud usage, amortizing each payment from when the cost is incurred to when the cloud service ends.
- **Combine strategies 1 and 2**, to balance the pros and cons of each approach.
- **Provide a small adder to the recovery of cloud computing expenses** and retain common operating expense treatment for cloud solutions.



Take the Next Step to EDM Success

To ensure long-term benefits and flexibility, keep the conversation going with your vendor. Your utility and the platform provider are partners in each other's success. At Con Edison, ongoing engagement with Synergis has offered considerable value as the utility extends Adept into new departments and use cases. "Synergis works with us to identify gaps and opportunities for improvement. These are reflected in the next upgrade," said Davis. "We get that service without having to pay for customizations."

In an industry where precision, safety and efficiency are paramount, implementing a comprehensive EDM system can position your utility for long-term success. By streamlining workflows, enhancing collaboration and ensuring compliance, EDM becomes a cornerstone for operational excellence, innovation and resilience in an ever-evolving utility landscape.



Synergis Software is the creator of Adept, the engineering document management platform that helps utility and energy companies transform operations for increased efficiency and reduced risk. Adept delivers a centralized source of truth that connects teams and simplifies document access, control, and collaboration. With built-in view and markup tools that support hundreds of formats, along with seamless CAD and business system integrations, Adept redefines operational excellence and empowers growth.

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