# MILSOFT®
## Utility Solutions

# Geographic Information System

**Get the most out of your Geospatial Information System (GIS) investment by fully integrating the best electrical grid analysis software in the industry into your ESRI® GIS environment. The Milsoft GIS, WindMilMap®, is fully integrated with the detailed circuit model so that Milsoft customers can have a single, integrated system for all their E&O (engineering and operations) applications. Powerful and convenient project management capability allows utilities to create and maintain the necessary data for all their electric grid E&O needs in a single, integrated suite of products.**

**Decisions requiring information that used to take hours to collect and organize, can now be made in a fraction of the time. With Milsoft GIS, the biggest advantage realized is assuring that circuit model integrity is maintained in both the GIS and engineering circuit model. Unlike stand alone GIS platforms, changes cannot be made in the utility's GIS that are not approved by the engineering analysis software. This keeps the GIS from accepting changes that could otherwise lead to costly errors or worse.**

# The Smart Grid

The role that GIS plays in the Smart Grid is undeniable. The future of Smart Grid technology is driven by the need to provide consumers with real options in the way they use and manage their power services. For utilities, this means having critical data and feedback about the power system plus the ability to see what is happening, when it is happening, where it is happening and to determine why it is happening. This typically translates into lower operational costs and improved customer service levels.  Happy customers are priceless. Getting from where we are today to the visions and aspirations of the Smart Grid will require a very strong GIS platform, a solid circuit model and interoperability with all kinds of input devices. Don't be caught behind the technology curve. Utilities investing today in interoperable GIS systems will be far ahead in providing a host of customer services that emerging technologies will deliver to the utilities market.

# Control is Key

We've talked a lot about automation. After all, the beauty behind this program is that changes get made one time avoiding costly double and triple entry of changes. This does not include the time savings associated with cross checking multiple documents to assure everything is synchronized and that changes have been populated throughout the system.

It's important for us to stress that you control rights and privileges and that nothing happens automatically unless you want it to. Changes can still be cued for final review and only then can changes made be pushed into the GIS or circuit model. You can relax knowing that the system can be set up to ensure that all proper review processes are indeed supported. From a helicopter view of the process, changes are automatic in the sense that they push "approved" changes across the system. We understand that control of any process is key and you don't lose any control at all by incorporating WindMilMap.

However, with this control come compromises. Changes that used to be incorporated in GIS without checks and balances now will require a review in the Engineering software. This step can be awkward for those of you who currently have GIS and have never had to make changes in engineering analysis software. With time, we feel that the benefits of filtering all changes to the GIS in the engineering software will save time and money. It will do so by greatly reducing or eliminating errors caused by not having a process in place that  assures that the circuit model integrity is maintained at all times.

**MILSOFT**®
Utility Solutions

## Making Maps Truly Portable

Another advantage of GIS is that your maps are truly portable and more importantly, easily accessible to anyone in your utility who has been given rights to see and/or make changes. You can view maps in your car or on-site using your lap-top or PDA and print documents like estimates or reports on-site. These features save time and money and increase reliability and quality creating a win-win situation for the utility and the customer. Utilities perform less data entry and have better control and access to that data while customers benefit from better service. There is another important reason to consider WindMilMap; it is a key component of a Smart Grid. As utilities take strides at defining what the Smart Grid means to them, there can be no debate about the role that a GIS and integrated circuit model play in making your utility smart.

## Just a Few Examples of how GIS is being used by utilities

- Map Viewing: Allows user friendly zoom and move tools to review maps, identify features and review data.
- Information Access: Some utilities provide all staff members access to the GIS and customer data to help them make better informed decisions and improve service.
- Map Publication: Freely share maps with personnel, customers and agencies in need of GIS information.
- Replace Paper: Many utilities have replaced paper-based geospatial information. While this greatly simplifies things for staff members, perhaps more importantly, it places accurate and up-to-the-minute information in the hands of personnel who need it most.
- Infrastructure Planning: Plan new infrastructure or locate existing underground infrastructure.
- Billing Support: Map locations and apply appropriate billing codes to these locations for billing purposes.
- Integration: Integrate AMI infrastructure for symbolizing various data streams such as outages.
- Asset Inventory: Click on a location and see what components make up the asset.

Many utilities already have GIS. For those who have GIS but want to know how our Milsoft GIS product works, the answer is simple: all changes to the GIS that affect the circuit model must first pass the scrutiny and quality assurance that only the engineering analysis software can provide. This process guarantees that changes made to the GIS are those that would be acceptable in the engineering analysis software! This combination is powerful and combines the beauty and elegance of a GIS with the engineering logic of Milsoft's industry leading engineering analysis software.

For those of you contemplating the decision to incorporate GIS, it makes absolute sense. Utilities have become increasingly complex with huge electrical distribution networks typically comprised of multiple sources, feeders and alternate feeding points. Updating and managing these networks has become increasingly difficult. The need to remain nimble and adaptable to market conditions and regulatory requirements will force utilities to find ways to be more competitive and effective. Having a visual representation of your network's configuration, and the details behind it, provides key advantages in operating your utility and planning for its future. The integration of GIS and your circuit model then takes you to a whole different level. Outage management, fault analysis and "what if" scenarios can all be modeled.

**MILSOFT**®
Utility Solutions

# Milsoft's GIS for Electric Utilities

Designed to take the power of WindMil® and embed it in the ESRI® environment, WindMilMap provides a single data source for the electrical connectivity model used by engineering analysis  and GIS. Changes to the electrical model in WindMil and GIS are universal and require no additional data conversion or data entry. With the release of WindMilMap, Milsoft and ESRI products can now be mapped to use the same database. WindMilMap provides ESRI users with WindMil's advanced connectivity model, making it possible to model and run analytical studies of both radial and looped electrical systems.

The addition of WindMil's toolset to ArcGIS® Desktop and relevant ArcGIS Engine applications, simplifies the editing of circuit element properties, connectivity and associated equipment data. WindMil's proven and perfected tools and dialogs can now be accessed and used in ESRI applications.

WindMilMap provides the ability to quickly define and switch between common electrical model symbols in ArcGIS Desktop and relevant ArcEngine applications.

With the integration of WindMil's connectivity model, traces can be done and symbolized instantly. Enhanced WindMil display modes provide more flexibility while creating the appropriate layers for symbolizing by property and analysis results.



**MILSOFT**®
Utility Solutions

# Already Have ESRI?

WindMilMap allows the user to edit the Milsoft circuit model in the ESRI/ArcMap environment. This allows the user to display circuit model data in multiple map documents (MXD) with various other landbase data layers (dwgs, shape-files, tifs, MrSIDs).

WindMilMap data is stored in the "live" circuit model which allows the Milsoft analysis tools to constantly validate your model. This prevents errors such as incorrect phasing. Errors can occur in the geometric network model which cannot occur in Milsoft's logical parent-child WindMil model. The circuit model data is also linked to a geo-database in order to be viewed as an ESRI feature class. This data storage method allows the user to view the model in either Milsoft or ESRI products while maintaining all of the integrity of the Milsoft circuit model. The data can also be published out of the circuit model to be used in applications such as ArcReader and other solutions through ESRI's ArcGIS Server application.

In addition to transferring circuit model changes to each user, WindMilMap allows each user to customize the symbols on their circuit model elements. Each user now has the ability to define their individual symbology and personal preferences.

WindMilMap allows the user to work within a "Project" which allows them to edit and check data before it is committed to the circuit model. Projects can be tested in the engineering model for effect on reliability and distribution quality even before a project is completed. The linked model enables the GIS operator to enter the changes in the map due to construction or maintenance while allowing the Engineer to edit the sizes of impedance devices such as transformers and protective devices such as fuses and breakers.

Using ESRI's abundant symbology options, WindMilMap can graphically display electrical flow, feeder, phase, conductor, voltage and other information. Trace circuit options are available as well. ESRI edit and selection tools, as well as WindMil edit and selection tools, are available to the GIS operator for efficient familiar manipulation of the GIS system.

WindMilMap takes full advantage of ESRI's layout and print capabilities. WindMilMap is a true enterprise wide GIS solution with all the power of Milsoft and ESRI in one complete package.

# Functions within ESRI for WindMil Users

- Load Allocation
- Voltage Drop (Load Flow)
- Fault Current
- Fault Flow
- Fault Locator
- Feeder Optimization
- Load Balance
- Coordination

- Motor Analysis
- Capacitor Placement
- Set Regulation (Automatic Voltage Regulator Settings)
- Transformer Load Management
- Contingency Study
- Reliability Analysis

**MILSOFT**®
Utility Solutions