



ArcFM™
The GIS for Utilities

ArcFM

Beyond the Buzz...to a Profitable Reality

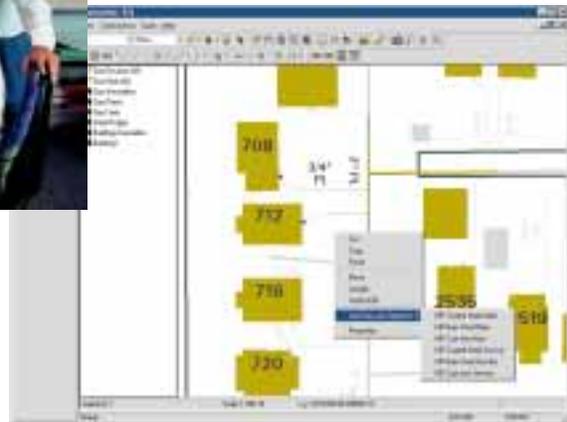
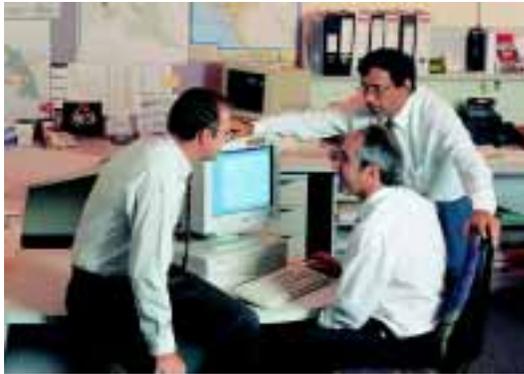
We all know the list of buzzwords that are circulating around the industry today—competitive edge, market-driven, cost-conscious, best of breed, out-of-the-box, business challenges, business solutions. But it's not enough to merely use them. You need to understand what they really mean, what they stand for—and most importantly you need to know that the technology providers serving your organization will help you move beyond the buzz to a successful and profitable reality.



Enter ESRI. We understand that achieving success in your ever-changing business environment calls for the implementation of strategic information

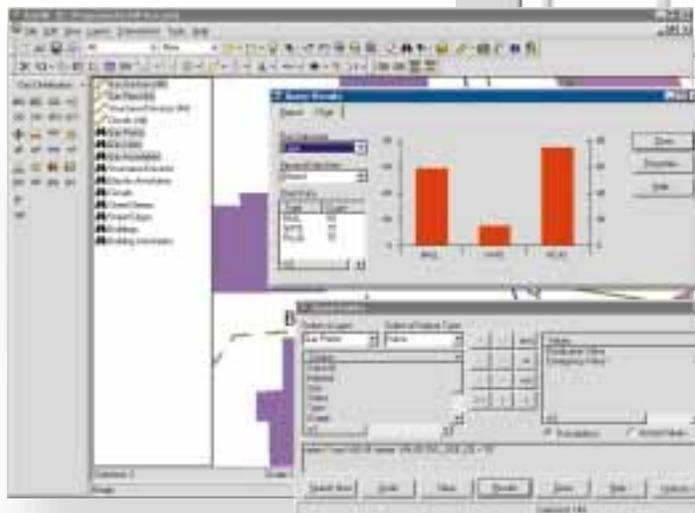
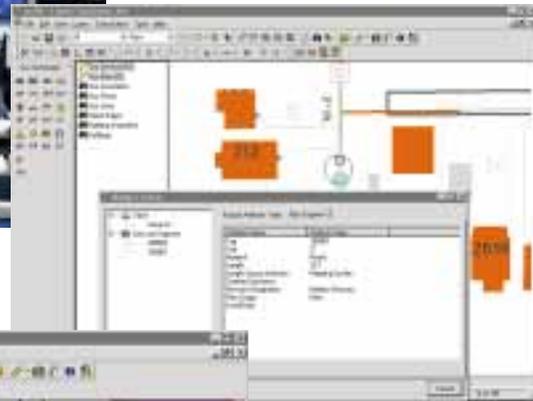
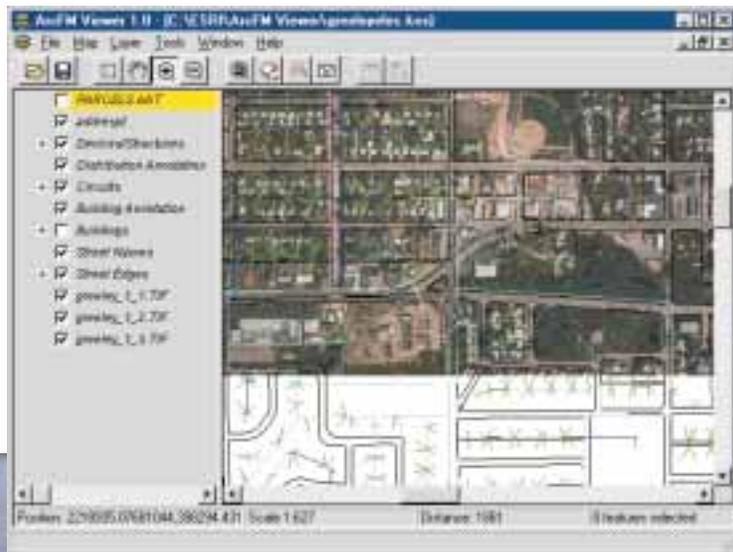
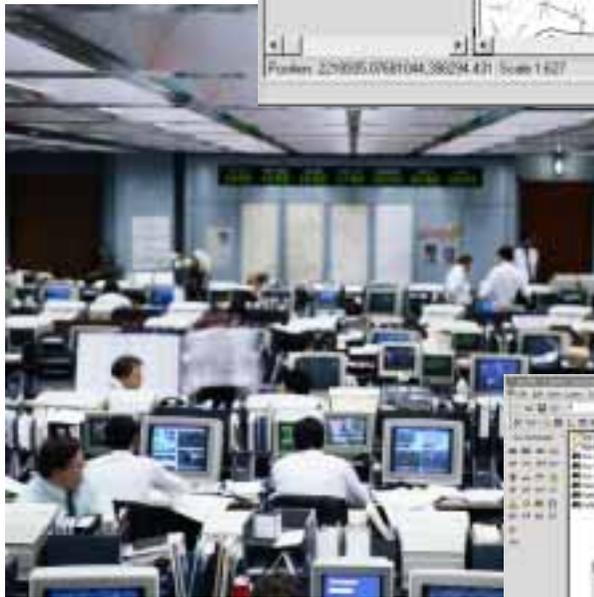
technology systems. As the leading provider of spatial technology, ESRI views information sharing as the primary benefit of working with its geographic information system (GIS) software. Profitability can be achieved only by transforming your GIS into a framework for all of the major activities and components of your business, from customer locations to distribution networks.

ESRI makes this transformation an elegant one for your organization. ESRI™ software has been successfully implemented as a spatially enabling corporate database solution by more leading technology companies than any other alternative. No other spatial software supports more database management systems (DBMSs). ESRI solutions are purely relational and client/server based, use open development tools, and provide ultrafast access to corporate data. And with more than 25 years of experience supporting your business environment, ESRI is poised to help you meet the challenges you face today and will no doubt face in the competitive future.



Integrating geographic data with that of engineering, operations, corporate, accounting, and property records eliminates duplicate data. It also eliminates the effort, expense, and currency problems associated with maintaining redundant records. Market forces are motivating the move toward true integration of corporate, engineering, and spatial data.

Given the greater availability of spatial data, the capacity to integrate spatial data with nonspatial data in commercially available relational database management systems by using ESRI's Spatial Database Engine™ (SDE™) software is critical. Recent advances in Internet/Intranet and global positioning system (GPS) technologies make spatial data more easily available to all levels of your organization.



Growing with You...ArcFM

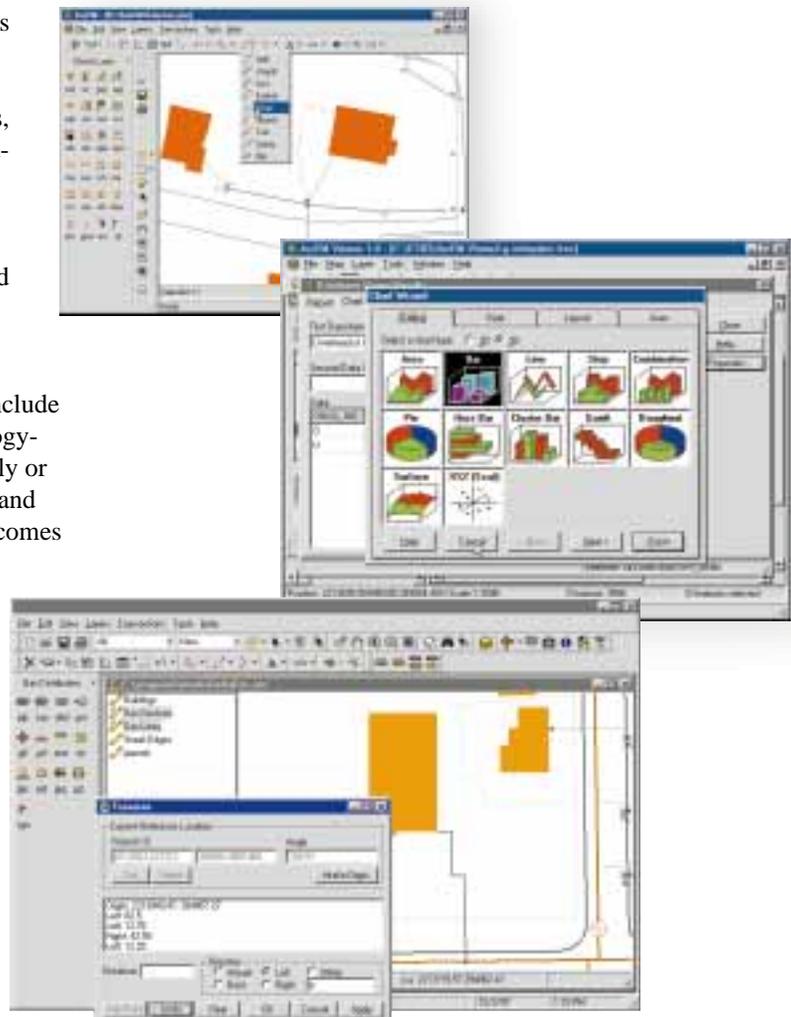
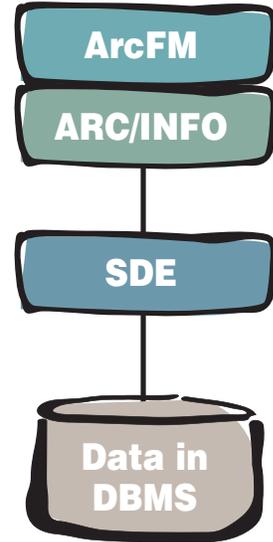
Movement toward widespread use of GIS has resulted in key technological advances by ESRI. These advances include the ability to manage GIS data with commercial DBMSs, use of embeddable objects for GIS, and use of Windows-based desktop systems that deliver the same shining performance and functionality as earlier workstation products.

These trends have come together in Arc Facilities Manager (ArcFM™) software, an ARC/INFO™ software-based application designed specifically for the editing, maintenance, modeling, and data management of utility information. ArcFM, written in Microsoft® Visual Basic® 5.0 for a Windows NT® operating environment, adheres strongly to modern concepts of software engineering and user interface design.

ArcFM is designed by ESRI and business partner Miner and Miner. It meets the data management needs of electric, gas, water, and wastewater utilities and other organizations working with network and land base data. With ArcFM software's powerful enterprise data management and editing capabilities, your organization can jump-start a new implementation or quickly modernize an existing one. Whether you choose to work with ArcFM as is or tailor it to meet your specific business and operational needs, the benefits of true data integration will be delivered in a fraction of the time of traditional application development.

ArcFM software's standard templates for utilities include business rules and a data model stored in a technology-independent data architecture to be used immediately or modified with a powerful application development and maintenance interface. ArcFM is all-relational and comes with powerful features including support for long and short transactions in a true versioning solution built with ESRI's SDE technology.

Are you a gas utility looking for abandoned pipes? A water utility tracking leaks? An electric utility searching for problem cable lines? A local government agency improving your parcel-level land base data? With ArcFM you will have the most advanced method available for performing the tasks that will keep you ahead of your competition and moving toward your most profitable reality.



RuleBase Engine: Key to an Evolutionary Migration Strategy

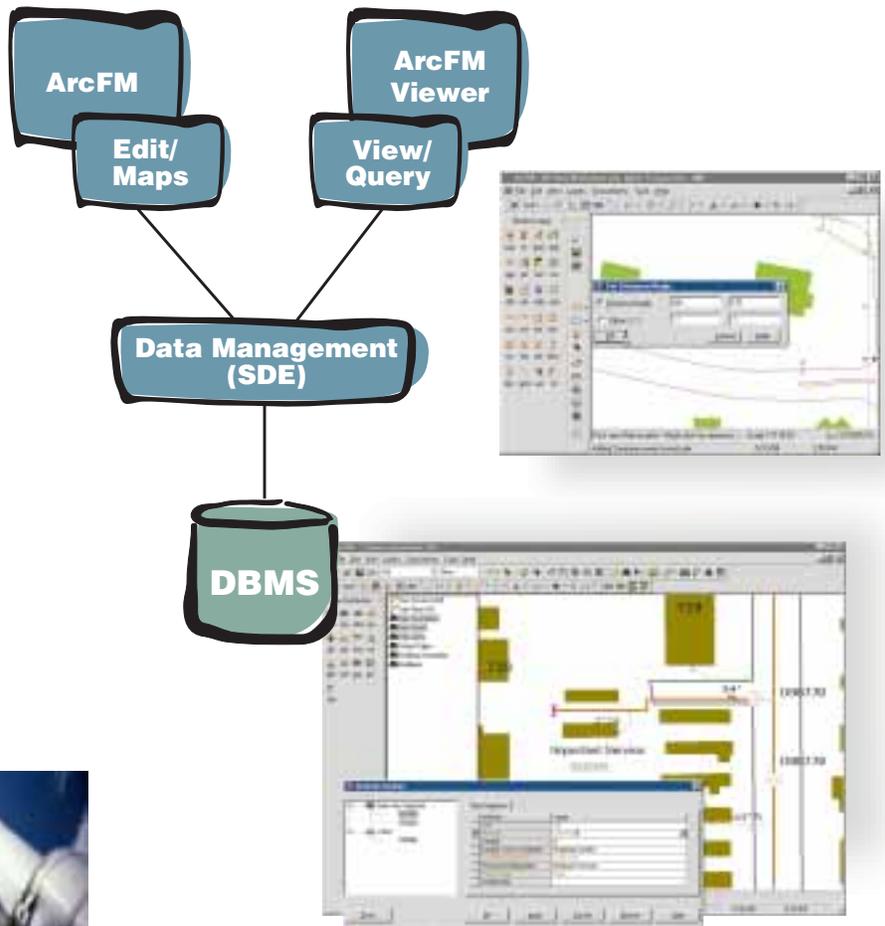
ArcFM helps you manage and edit your information. Associated ArcFM Viewer software allows multiple users to view and query your database. The standard ArcFM and ArcFM Viewer database design is representative of typical systems, yet it is easily customizable to suit the needs of your particular organization.

ArcFM software's architecture addresses a prime concern of utilities in today's dynamic and fluid business environment: obsolescence. ArcFM and ArcFM Viewer use the RuleBase Engine (RBE) to encode the business rules of an organization, such as avoidance of device mismatches or topological and attribute validation, into the database design. The RBE gives you a single, common, customizable methodology for the data model, data control, and interface. The technology covers symbology, data editing, data management, data connectivity, and validation rules.

Utility editors are typically data dependent. ArcFM includes five standard RuleBases: electric, gas, water, wastewater, and land base. Each RuleBase encapsulates all required domain-specific knowledge for each application area, thus avoiding lengthy and costly start-up customization.

Long-term maintenance costs are also minimized.

The RBE simplifies and speeds up application development. The underlying technology can change without impacting an existing application, and the same RuleBase can also support new applications. The database design supports all applications and is nonproprietary. This means that using the RBE protects your organization's investment from obsolescence.



Case Study—Alinta Gas

In 1992, the State government in Western Australia commissioned the Energy Board of Review to investigate ways to improve the efficiency of the energy business in the State. The Board came back with a recommendation that the State Energy Commission of Western Australia, which supplied gas to the area, be split into a number of competing businesses.

Alinta Gas of Perth, Australia, was created as a result of State government moves to deregulate the market. Alinta, which manages one of the world's longest natural gas distribution pipelines, is using ArcFM to develop an integrated GIS solution to remain competitive while effectively serving its 350,000 residential, business, and industrial customers.



ArcFM

Feature Add/Delete/Move Tools

Rollback/QA Tools

Edit Tools

Feature Selection Tools

Electric Distribution Features

The screenshot displays the ArcFM software interface. At the top, a menu bar includes File, Edit, View, Layers, Transactions, Tools, and Help. Below the menu bar is a toolbar with various icons. A secondary toolbar contains icons for QA, Undo, and other utility functions. The main workspace is divided into several panels. On the left, a panel titled 'Electric Distribution' contains a grid of icons representing various utility features. In the center, a list of feature categories is shown, including Gas Devices (44), Gas Pipe (44), Structures/Devices (44), Circuits (44), Gas Points, Gas Lines, Gas Annotation, Structures/Devices, Electric Annotation, Circuits, Street Names, Street Edges, Buildings, and Building Annotation. On the right, a map view shows a utility network with a feature labeled 'B112'. At the bottom, an 'Image Tool' panel is visible, showing a tree view of layers with 'Electric Layer' expanded to show 'pole' and 'pole1'. To the right of the tree are buttons for 'Search for Image', 'Store Image', 'Drop Image', 'View Selected Image', 'Assign Image', and 'Unassign Image'. Below the tree, there are input fields for 'Category' (pole), 'File Name' (pole_1.ras), and 'Image Name' (pole1). To the right of these fields is a large text area labeled 'Associated Image Name' containing the text 'pole1'.

Display and Geocoding Tools

Query Tools

Pan/Zoom Tools

Edit/Import Tools

Ad Hoc Mapping Tool



Feature Selection

- Pole
460000000020081
- Primary Conductor
460000000021732
460000000021735
- Secondary/Service Conductor
220000000051677
220000000051678
220000000051679
220000000051680

Select Method
Graphic Selection

Select Highlight Close

Cancel

Feature Image

Pan/Zoom

A photograph of a wooden utility pole with multiple cross-arms and insulators, set against a clear blue sky. The pole is the central focus of the image.

X:94.30486 Y:80.10876 dx:-145.23288

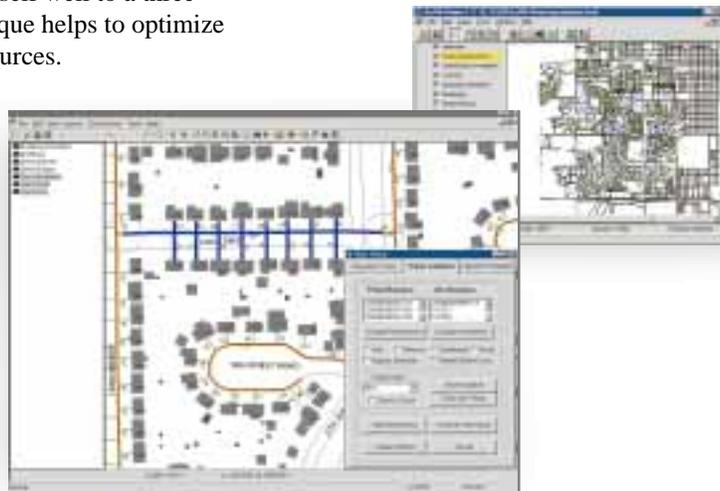
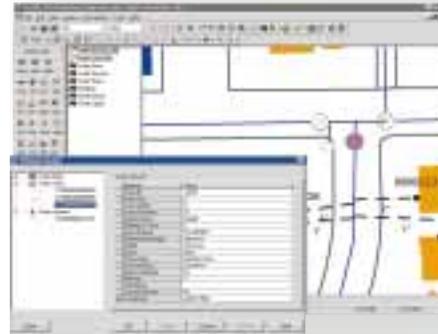


Extendable Architecture and Open Technology = Highly Focused Solutions

ArcFM features the very latest in open technology. It brings a wealth of power to utility users including open hardware and software standards, open database support, and an open application programming interface (API). ArcFM is designed to take full advantage of open systems architecture and to provide for fully networked solutions in a client/server environment.

The direction of ESRI and business partner Miner and Miner applications is based upon gaining leverage for enterprise AM/FM/GIS through the use of open technology. Three key components of this strategy are an open development environment, open database support, and Component Object Model (COM) technology. Beyond the benefits of open technology, this approach lends itself well to a three-tiered architecture. This modern technique helps to optimize your computing and infrastructure resources.

Because of ArcFM software's extendable architecture, BaySys Technologies, another of ESRI's strategic partners, has helped extend ArcFM for the water/wastewater industry. Partnerships such as these will give your organization the highly focused solutions it needs to succeed.



Case Study—Sam Houston Electric Cooperative, Inc.

Sam Houston Electric Cooperative, Inc. (SHECO), headquartered in Livingston, Texas, serves 45,490 members in parts of 10 Texas counties and maintains over 5,700 miles of line. ArcFM gives SHECO a customized solution designed specifically to meet its needs. Up and running quickly using ArcFM, SHECO now integrates business functions that were in the past managed separately. By automating and integrating these processes, SHECO will stay ahead of future growth and other industry changes.

SHECO's GIS solution provides advanced tools across the enterprise for its core business processes including engineering, customer service, and operations. Using a custom interface and application tools, applications, such as distribution and line analysis, work order

processing, automated mapping, and facility planning, can all be managed using one solution.

"We needed better information on our customers and our facilities, and we needed to more accurately manage and update that information in a digital environment. GIS gives us the ability to integrate our customer information with our facility information, work management system, and other separate database systems."

Robin Hull, Sam Houston Electric Cooperative, Inc.

Reaching Your Fundamental Goals: Keeping Everything in Context

ArcFM offers all the capabilities that your organization demands of a state-of-the-art facilities manager. From its integrated menu-driven user interface, you have access to a comprehensive range of tools to create and update data-bases, conduct basic standard analyses, and produce the maps you need to get the job done right.

The fundamental goal of any AM/FM editing system is to place facilities, pipes, or electrical conductors, and the associated devices that allow them to function correctly, within the context of the public they serve. The query functions provided by ArcFM and ArcFM Viewer can be used by a broad range of personnel, from executives to customer service representatives. By providing a spatial link to data about facilities and customers, query applications result in tremendous benefits. Using GIS technology to answer simple questions like “How many valves are due for inspection in the town of Fort Collins?” can result in great labor savings over manual methods.

ArcFM allows you to produce quality standard or ad hoc maps. Your organization relies on maps for operational purposes, varying from detailed distribution and transmission facilities maps to property and rights-of-way maps to schematized network maps. ArcFM gives you the power to drive these different maps from a single, integrated data source.



Case Study—North Penn Water Authority

Today's water and wastewater utilities require AM/FM/GIS solutions that can be implemented rapidly and integrated seamlessly with other business systems. From an operational perspective it is essential that decision support tools provide staff and managers with accurate and timely information.

ArcFM software offers an attractive solution for providing North Penn Water Authority (NPWA) with an off-the-shelf application without compromising its ability to tailor a solution to meet particular operational needs and requirements as they arise. As well understood by NPWA's GIS consultant, Utility Management & Engineering, prior to the introduction of ArcFM, PC applications of this kind

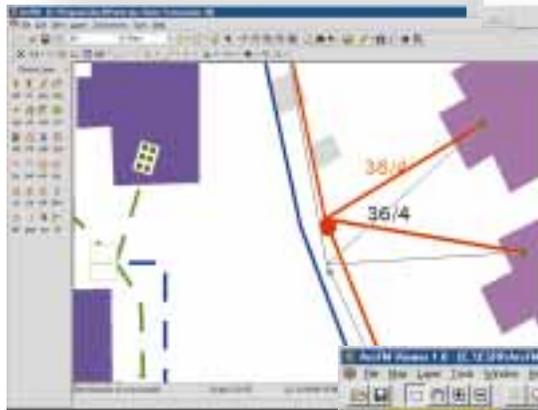
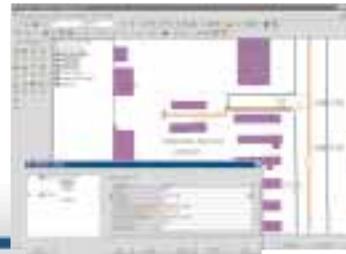
required considerable customization and months of programming.

NPWA has found that ArcFM software's RuleBase provides the means to encapsulate business rules and procedures without requiring rewriting of application code. In addition, because ArcFM is supported by ESRI, it means that NPWA is sure to keep pace with the latest technological enhancements.

ESRI GIS Works for Your Organization

ESRI's GIS software solutions help utilities efficiently answer the most difficult questions. Where are your facilities and how are they being used? What is the condition of water mains, valves, hydrants, meters, storage facilities, sewer mains, and manholes? Companies must keep up with NPDES compliance, TV inspection data, and condition ratings. GIS lets you organize, manage, and distribute geographic information culled from various databases, while maintaining data integrity and focusing on project direction.

ArcFM can easily integrate with customer information systems, work management systems, SCADA, modeling, or any other existing information system used by your organization including major vendor solutions such as CustomerOne, Logica, Azteca, Stoner/STS, and SAP. Along with your planned or existing information systems, ArcFM can help you reduce operating costs, eliminate data redundancy, increase data integration and efficiency, automate analysis processes, and access needed information in your facilities management system.



Leading the OpenFM Initiative

ESRI's OpenFM Initiative is a complete solution that will provide a process to create standard interfaces between server AM/FM/GIS and complementary technologies such as mobile data dispatch, network analysis, and outage management systems. As part of OpenFM, which uses ESRI's GIS software as its core spatial technology, the interfaces will allow data sharing with the SAP™ R/3™ enterprise business solution for utilities through ESRI's certified GIS interface to R/3 for complete data integration.

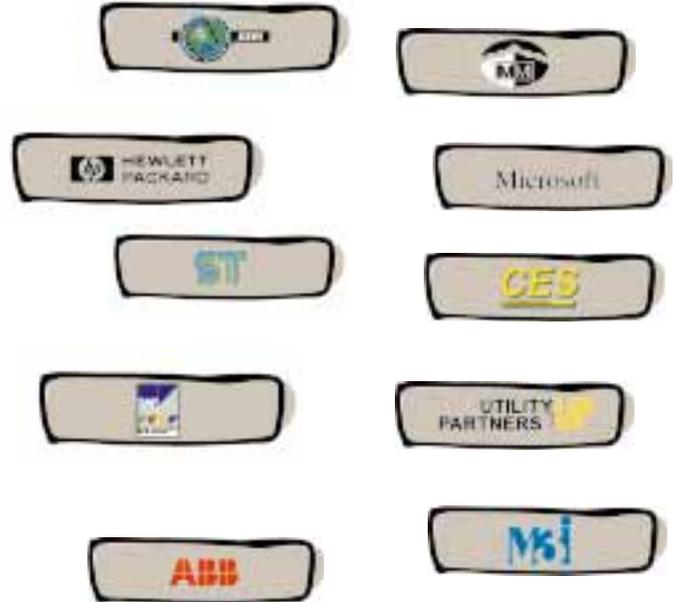
OpenFM is designed to give utilities a truly integrated AM/FM/GIS solution that cuts across the enterprise. By combining hardware from Hewlett-Packard, software from Microsoft (SQL Server™) and SAP, and applications into a defined package, utility operation costs will be drastically reduced. Introducing a common database for utility information, automating the process of acquiring and maintaining geospatial data, and providing a reliable upgrade path for your organization are the keys to success.



“This means that utilities can focus on the business of selling energy instead of keeping their systems synchronized between vendor releases.”

Dan Morgridge, Utility Marketing Manager, Hewlett-Packard

OpenFM Initiative Partners



ESRI: A Company for the 21st Century

ESRI, world leader in GIS, mapping components, and spatial database management tools, has more than 100,000 client sites worldwide. Founded in 1969, ESRI continues to be privately held and offers a complete suite of GIS software; services to plan, implement, and maintain your GIS; and a wealth of data sources to power your GIS.

ESRI's reputation is built on decades of experience helping businesses and organizations solve real-world problems using geographic information.

ESRI continually strives to improve its software and services. ESRI software is significantly more advanced than competitive products in both functionality and quality. Substantial software enhancements, new software features, innovative training courses, and continual application development services make ESRI your best choice for GIS today and into the next millennium.



For more than 25 years ESRI has been helping people manage and analyze geographic information. ESRI offers a framework for implementing GIS in any organization with a seamless link from personal GIS on the desktop to enterprisewide GIS client/server and data management systems. ESRI GIS solutions are flexible and can be customized to meet the needs of our users. ESRI is a full-service GIS company, ready to help you begin, grow, and build success with GIS.

Corporate

ESRI
380 New York Street
Redlands, California
92373-8100 USA
Tel.: 909-793-2853
Fax: 909-793-5953

For more information call
ESRI at

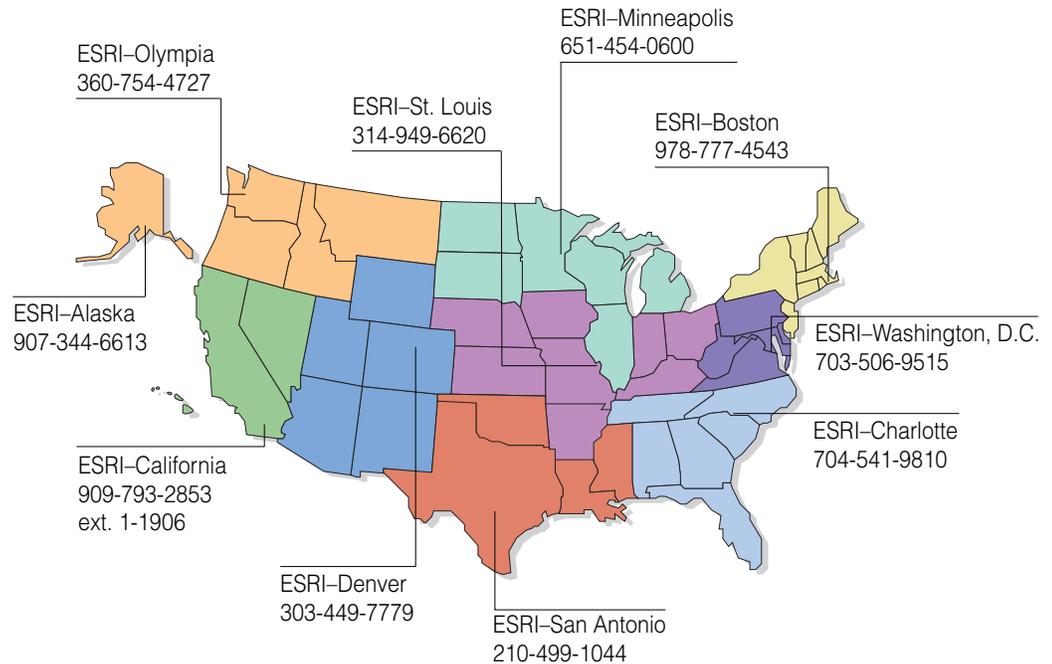
1-800-447-9778

(1-800-GIS-XPRT)

Send E-mail inquiries to
info@esri.com

Visit ESRI's Web page at
www.esri.com/arcfm

Regional Offices



International Offices

Australia
61-89-242-1005

Belgium/Luxembourg
32-2-460-7480

Canada
416-441-6035

France
33-1-46-23-6060

Germany and Switzerland
49-8166-677-0
41-1-364-1964

Hong Kong
852-2730-6883

India
91-11-620-3801

Italy
390-6-406-96-1

Netherlands
31-10-217-0700

Poland
48-22-825-9836

Singapore/Malaysia/Indonesia
65-735-8755

Spain
34-91-559-4375

Sweden
46-23-84090

Thailand
66-2-678-0707

United Kingdom
44-1-923-210450

Venezuela
58-2-285-1134

Outside the United States,
contact your local ESRI distributor.
For the number of your distributor,
call ESRI at 909-793-2853, ext. 1-1235,
or visit our Web site at
www.esri.com/international

Place ESRI business partner or distributor address here.

Copyright © 1998 Environmental Systems Research Institute, Inc. All rights reserved. ESRI and ARC/INFO are registered trademarks in the United States and are either trademarks or registered trademarks in all other countries where they are used; ArcFM, the ArcFM logo, Spatial Database Engine, SDE, and the ESRI globe logo are trademarks; and @esri.com and www.esri.com are service marks of Environmental Systems Research Institute, Inc. Other companies and products mentioned herein are trademarks or registered trademarks of their respective trademark owners.



No. GS-35F-5D86H