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President's Message

On behalf of all the staff at Enghouse, I would like to wish all our clients and readers a Happy and Prosperous New Year. I would also like to thank you for your continued support of APD. It is greatly appreciated and reciprocated by our assurance of commitment to you, our customers. This issue of Engenuity is specifically dedicated to APD. I trust that you will find it informative and invite you to contact anyone of us with your comments on this special APD issue or any other matters that you may wish to explore.

To those of our clients and staff who have contributed to this issue, I would like to extend my thanks for your participation. Engenuity is one of several communications vehicles we at Enghouse use to ensure that we are aware of your requirements. The annual Users Group, client visits and direct, individual discussions are all complementary to our objective to learn from our customers and inform the user base of APD activities at Enghouse.

As part of its strategy to grow the Company organically and through acquisitions, Enghouse has dramatically increased the market it serves in the past year by the acquisition of MOORE Resource Systems (MOORE) ([www.moorers.com](http://www.moorers.com)) and Syntellect ([www.syntellect.com](http://www.syntellect.com)). MOORE provides Information Engineering services and applications to the oil and gas pipeline industry. Syntellect is an Interactive Voice Response (IVR) systems provider. We welcome these companies to the Enghouse family. These acquisitions bring a broader scope of products, services and knowledge to Enghouse which is both synergistic and has cross-vertical utility.

Andrew Nellestyn PhD PEng  
President  
Enghouse Asset Management Division

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## Trusting Underground Design Software

If you trust before you try, you may repent before you die - an old proverb that holds a lot of truth. That proverb and the saying "If you believe that, I have oceanfront property in Arizona that I will sell you" came to mind when a sales executive told us he had software that, based on recent customer studies, could save us \$150 to \$250 per lot on the design and construction of services to a 100-home subdivision. As employees of Memphis Light, Gas and Water (MLGW), we owed it to our company and our customers to investigate. However, we proceeded with little faith there would be much validity to the claim.

MLGW is the nation's largest three-service municipal utility. The American Public Power Association ranked MLGW as the seventh largest public power utility both in number of electric customers served and in revenues of its electric division. MLGW distributes power to more than 406,000 residential, commercial, and industrial customers in Memphis and the seven suburban communities of Shelby County in southwest Tennessee. (Yes, even Elvis got his power from MLGW.)

MLGW is also the largest customer of the Tennessee Valley Authority, accounting for approximately 10 percent of its entire production. In addition to its electric system, MLGW has more than 305,000 gas customers and more than 248,000 water customers. On a peak day, MLGW supplies more than 570 million cubic feet of gas and 250 million gallons of water. Its artesian well system is one of the largest in the world. A billion-dollar operation, MLGW has approximately 2,500 employees. MLGW is the only utility company in the world to receive a triple A rating (Aaa and AAA) from both Standard and Poor's and Moody's Investor Services for its water bonds.

On average, MLGW provides utility services to about 5,000 subdivision lots per year. As a large utility company, you can imagine the number of salespeople who call on us. Based on the large number of salespeople soliciting our business, you also might be able to imagine the number of wild claims we have heard about different products. Therefore, we proceeded with great caution.

After reviewing the characteristics of our company, the aforementioned sales executive confidently told us the software would save us an average of \$100 per lot for electric underground subdivisions by optimizing designs. He explained the savings were generated in two ways: (1) The software uses patented logic algorithms to create an initial design that is already close to optimal, and (2) the software enables the designer to easily change individual parameters or groups of parameters to test for even better performance, all the while keeping track of material and labor costs to construct each design. Based on industry standards from utilities across the United States, the software is delivered with a default set of design rules and practices. However, it can be configured easily to reflect a utility's unique standards for each and every design.

<b>MLGW's Man vs. Software Challenge</b>				
Subdivision Name	Number of Lots	New Software's Design cost vs. MLGW's Design Cost	Per Lot Savings Using the New Software	Reasons/Remarks
Misty Creek	23	-\$5,278.52	\$229.50	Better utilization of transformers
Cedar Point	75	-\$5,342.59	\$71.23	Better / Shorter routes for cable
Dogwood	22	-\$353.19	\$16.05	Equal designs
Camp Cordova	79	-\$12,061.04	\$152.67	Better utilization of transformers and better / shorter routes for cable
Total	199	-\$23,035.34	\$115.76	(see above)

Some of the software's benefits are that it lowers construction costs through improved designs, allows total control over design standards, eliminates or reduces backlogs through faster design times, reduces the

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learning curve for quick savings because it is menu driven, and performs automatic engineering calculations.

As a new subdivision is planned, the software takes in plats provided by the developer and helps designers quickly create preliminary designs. Alternatives then can be rapidly evaluated until the designer is satisfied that an optimum design has been reached. This in turn improves relations with residential developers (an important group of customers since they constitute MLGW's largest residential customer).

When the time comes to consider changes in design rules, the software can be used to evaluate the impact of the new proposed conditions. It calculates time and material cost implications for each proposed change over a series of past or proposed plats and lets the designer compare the results.

The software has several fascinating capabilities: electric transformer placement, primary and secondary routing, and engineering analysis.

For electric transformer placement, the software logically groups lots which could be fed by the same transformer, sizes the transformer using engineering calculations, and gives the designer the ability to identify obstacles. Based on this analysis, the transformers are placed on the subdivision plat. As far as primary and secondary routing is concerned, the software routes the cable while making considerations for things like pulling tension, conductor length, available trench, street crossings and lowest cost. It also places secondary junction devices as needed, chooses the optimal cable size, and allows the designer to identify obstacles. Among its engineering analysis capabilities, the software calculates voltage drop, fault current, motor starting and cold load pickup, primary cable pulling tensions, operating losses, creates a bill of materials and performs phase balancing. It compares designs based on cost, voltage drop and/or operating losses.

With all of these promised advantages, we were anxious to explore the software and find out if it really worked. However, we had several questions and requests: (1) We wanted a list of current customers both new and old that we could call. (2) We wanted to see the product utilized. (3) We wanted to issue a challenge-the software vs. our most experienced designer. (4) We wanted to find out if the software was really user friendly. (5) If the claims proved true, we had to decide how we were going to pay for the software.

First, we obtained a list of current customers both new and old that we could call. The sales executive provided that information, and we contacted everyone on the list. Everyone that we talked to spoke highly of the software; however, we continued cautiously to our next step due to the origin of the list.

Next, we wanted to see the software actually work. The sales executive came onsite and did a very impressive presentation. However, he was doing a design on their subdivision. How would the software perform on a "real world" example, and could it really beat our experienced designers by more than \$100 per lot?

To find out, we proposed a contest pitting our veteran designer with more than 40 years of design experience against the software. The challenge would involve the layout of four different subdivisions. For one of the subdivisions, we would time how long it took us vs. how long it took them using the software, in addition to comparing the cost. The final result was an overall savings per lot of \$115.76 in favor of the software (see table). We analyzed the results and discovered that the software generated savings through better transformer utilization and determining optimum routes for the cable. The software also utilized secondary cable instead of primary cable where possible.

We decided to time the design of the Camp Cordova subdivision. The new software designed in 3.5 hours what it took our experienced designer 24 hours to do-and did so with a savings of \$153 per lot. Needless to say, our curiosity was piqued, and we were excited that this product might live up to its expectations.

Next, we wondered if the software was really user friendly. We had a mixture of engineering graduate employees, employees who were very computer literate, employees who worked their way up through the company with little more than a high school level education, and employees who understood utility design, but were not computer experienced. We conducted a small training class on the software and gave the employees an opportunity to provide feedback. Everyone, including our senior designers, agreed the

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software was understandable and had great potential to save us time and money. When designing the layout for an underground electric system in a subdivision, some of the most time-consuming decisions are what size transformer to use, where to place the transformers, and how to group the lots the transformer will serve. The software expedites that decision process and allows you to try and compare different scenarios quickly.

Finally, the big question: How were we going to pay for the software? MLGW has some of the lowest combined utility rates in the United States. To keep our rates low, MLGW charges developers and builders for the installation of utilities to serve their projects. However, MLGW does contribute to the utility cost of a project based on the projected consumption. On average, MLGW contributes a little over 20 percent of the cost for electric underground subdivisions. Therefore, the developer ends up paying a little less than 80 percent of this cost on average. While we want to do everything we can to provide cost-efficient, safe, reliable power for our customers, the savings per lot produced by this software would not directly impact MLGW's cost of operation. It would increase customer satisfaction and lower our turnaround time, but the direct beneficiary financially would be our developers.

We have been working hard over the last two years to improve and build our relationship with the developers. We utilize the local Memphis Area Home Builders' Association, which has a Developers' Council Group. Because of the trust and relationship we had built with this group, we were able to present the idea of a benefit exchange to pay for this software. We explained to them the process we had been through and the fact that we now believed the software would save them more than \$100 per lot on average for their utility costs in underground electric subdivisions. They agreed to pay a fee of \$50 per lot until the cost of the software was collected. Therefore, they would realize around a \$50 savings per lot initially, and, once the cost of the software was recovered, they would realize approximately a \$100 savings per lot.

At MLGW, we want to be the company of choice for utility services in the competitive 21st century. By utilizing innovative products like this design software, we can improve our customer satisfaction, lower our customer's cost, and ensure we will be their choice in the future.

By the way, for those interested, the name of the software we have been describing throughout this article is PowerWORKS APD (Automated Plat Design) by Enghouse Systems Limited. More information can be found at the company's website, [www.enghouse.com](http://www.enghouse.com).

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## Acquisitions 2002

### Moore Resource Systems Ltd.

On April 3, 2002 Enghouse completed its first acquisition – Moore Resource Systems of Campbellville, Ontario.

Moore is a leading supplier of software and services to utilities, with a strong emphasis on the oil and gas segments. Moore's customers include some of the largest companies in North America, including El Paso Corporation, ChevronTexaco Corporation, and TransCanada Pipelines Ltd. Moore has been growing at approximately 25% per year and are expecting to have revenues next year in excess of \$4 Million.

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## Syntellec Inc.

On December 12, 2002 Enghouse completed the acquisition of Syntellec Inc.

"We are excited about the opportunity to enter the customer self-service marketplace through the acquisition of Syntellec, and we believe that the combination of our two companies will present a positive future for all concerned," commented Stephen Sadler, Chairman & CEO of Enghouse.

Syntellec is a global leader in speech-enabled customer, employee and supply-chain self-service software solutions. Vista IMR, the Company's fourth-generation voice processing software platform, is the only open standards, Windows NT/Java TM and Voice XML platform available from a major supplier.

Syntellec is based in Phoenix, Arizona. Further information is available at [www.syntellec.com](http://www.syntellec.com)

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## **New for 2003**

- ❖ NetWORKS 4.0 to provide electric asset and facilities management module and copper module
  
- ❖ CableCad 4.3 – Two-part release scheduled for May 2003 and September 2003
  
- ❖ PSO