

Infrastructure, regulatory and financial information for the antenna-siting community

ABOVE GROUND LEVEL

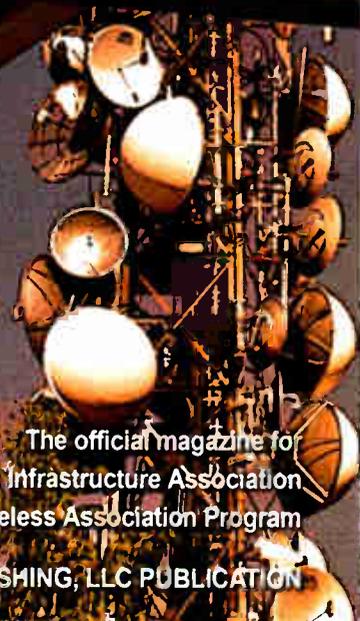
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Greenfield development is an efficient way to deploy capital. It's an even better return for investors.

Forecasting weather ... *ah...* site development

Larry Louk

Local site development managers: How about a 'Take Your Competitor to Lunch' day?

Moving Parts

J.S. 'Jake' MacLeod

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Allen Dixon

'How do we take advantage of DAS?' is the new attitude among carriers this year compared to last year.

DAS Goes Inside

John Spindler

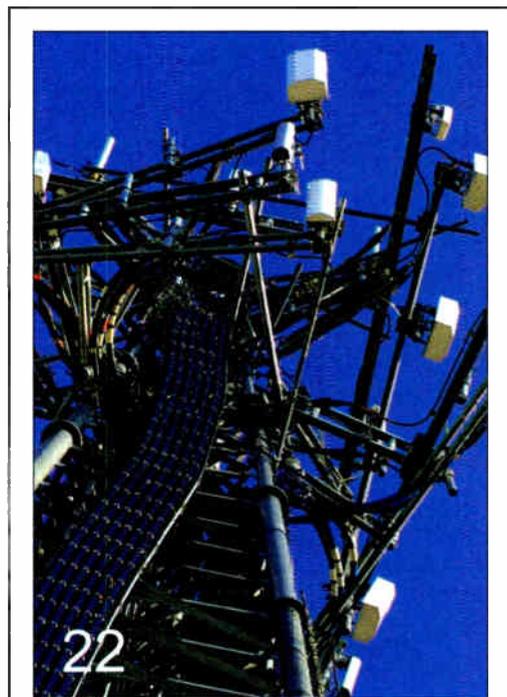
Look for a significant up tick in the percentage of in-building wireless that goes direct to enterprise.

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Think Small

Larry Heisler

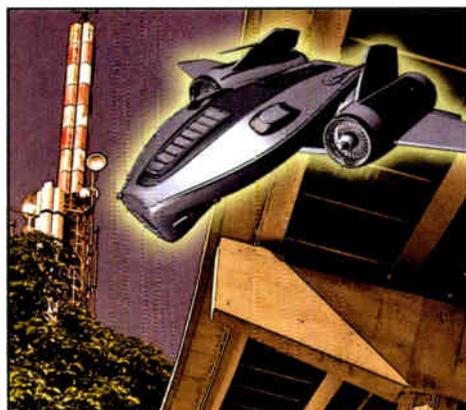
Carriers and tower owners should be looking for opportunities to share feeders. And probably the next big thing involves a remote system you run over a fiber so you don't necessarily have big cables going to the top of the tower.



Centerspread: Tower of the Month

This self-supporting tower was originally designed and manufactured by Nello Corporation for Horvath Communications as a 280-foot SST for a wireless carrier in 2003. It was extended to 293 feet in 2005, and Optasite acquired the tower in 2007.

Departments



on the cover

The American poet Mark Strand wrote, "The future is always beginning now." In "Horizons 2008," we examine current technology, financial and industry trends affecting future activity in antenna siting.

Photo illustration by Scott Dolash.

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LOUD AND CLEAR ..."**

• **Antennas**

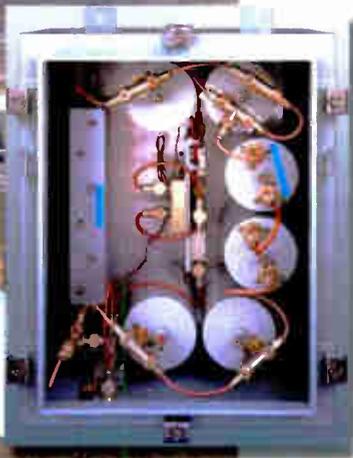
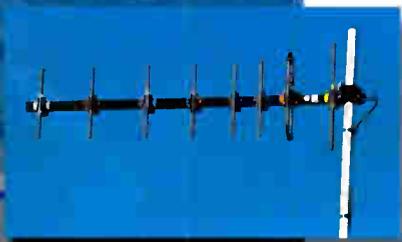
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For everything there is a time...

I declare 2008 the *Year of Education*. I have attended many meetings of zoning boards and planning commissions. I have made presentations and taught classes to groups inside and outside of the industry. I come away



concerned about inconsistent information and knowledge of the radio art among these official panels and informal groups. It is common enough that many of us in the industry, myself included, may lack fundamental knowledge of areas

outside the particular discipline we practice "9-to-5."

I would like to compile a series of white papers on important topics such as RF planning, antennas, radio system fundamentals, coverage differences of different technologies, RF/EME exposure, property values, fall radius, and others. "We" need to address in a concise, balanced and articulate manner the questions that officials and members of the public typically ask in the zoning and permitting process. Moreover, such a series could serve as education material for our own staffs. It would help us all.

Please send me your ideas on such a plan. What issues do you routinely see that could be addressed in such a manner?

Also for 2008, we're looking to cover some new ground. FAA issues are kind of routine, yet we have never really touched on the background and all of the considerations of FAA analysis—so we'll all learn about the FAA together. There is a little new energy

at the FCC with regard to enforcement, and we'll keep you informed about it. A major issue involves the requirement for backup power for just about all carriers. The fight is on, however. Various associations and carriers are fighting pretty hard against the mandate, but it is going to happen. The only question is when.

AGL has begun a biweekly electronic newsletter. Yes, more things to stuff your email account. We're all probably already overloaded with news and promotions and such. But we'll make this commitment to you: We will do our best to make sure that the newsletter is meaningful, informative and on-target. We don't like fillers any more than you. We started the newsletter by sending it to everyone who was signed up to receive AGL in a digital version. If you are not receiving the newsletter and would like to, visit www.agl-mag.com/signup and update your profile.

Additionally in 2008, we are offering the *Fryer's Market Report*. Formerly a yearly undertaking on the part of the Fryer's team and sold for several hundred dollars each year, the *Market Report* this year will be published as a special edition of AGL. **agl**

Correction:

Robert Foosaner, senior vice president and chief regulatory officer at Sprint Nextel, continues on the board of directors at PCIA – the Wireless Infrastructure Association. The November AGL included a report to the contrary based on a news release that inadvertently omitted his name. AGL regrets the error.

by Rich Biby, Publisher
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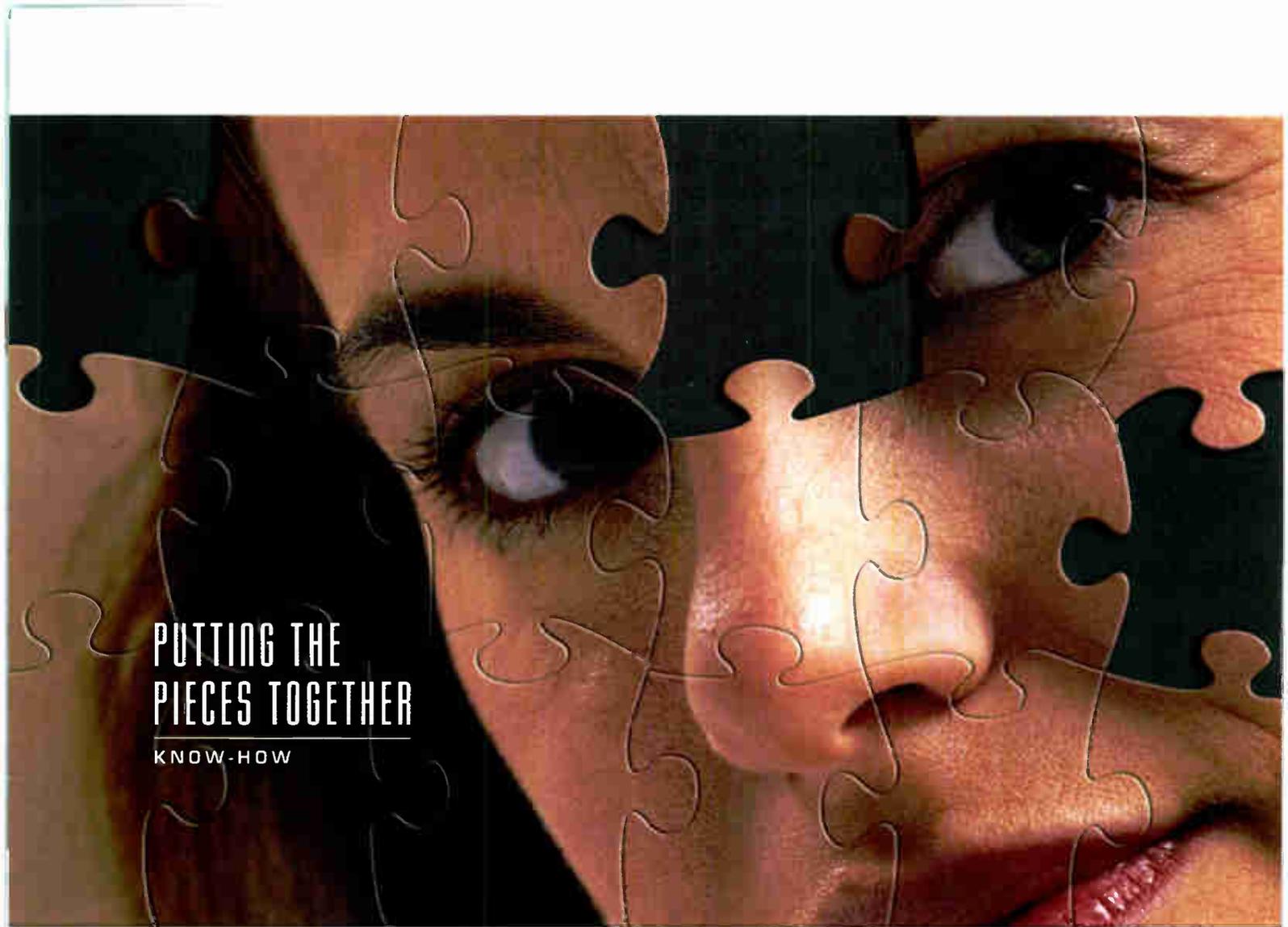
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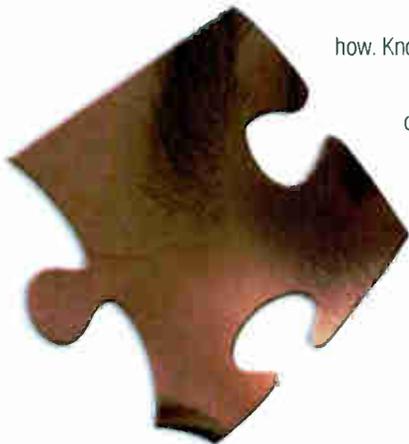




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A Tower and a Gentle Giant

Maybe it represented Coming of Age. It could be an example of Pop Culture. Perhaps it only was Matt's Whim. Whatever the reason, a headline and a link to a newspaper story about a cellular antenna hidden inside a religious cross appeared on the Drudge Report website on Wednesday,



November 28. By the next day, it was gone.

In the meantime, the story may have been accessed by a million or more people. The Drudge Report became popular when it broke the story of President Bill Clinton's affair with Monica Lewinsky. It receives about a million hits per day, so I'm told.

Traffic generated by a linked headline on Drudge can cause a website with limited bandwidth to suspend operation when downloads spike and capacity is exceeded. In this case, the headline linked to the St. Louis Post-Dispatch website, which appeared to have plenty of capacity.

The story, datelined Alton, IL, said, "Residents along Milton Road could be saved from the view of a hulking cell phone tower if one company has its way. Saved, that is, by a giant cross." The proposed tower/cross would stand 95 feet tall and sit on land owned by the Way of Faith Christian Center.

Alton is no stranger to giants. Our art director, Scott Dolash, who prepares AGL's popular covers and center-spread photographs, attended college in southern Illinois, and he called my attention to one of Alton's favorite sons, Robert Wadlow.

by **Don Bishop, Exec Editor**
dbishop | agl-mag.com

Guinness World Records lists Wadlow as the tallest person in medical history for whom there is irrefutable evidence. Doctors measured his height at 8 feet, 11.09 inches on June 27, 1940, 18 days before Wadlow died from an infection caused when a leg brace he wore abraded skin on his ankle. Wadlow was 22 years old. Height made him famous and attracted thousands of the curious. Stories cite his gentle disposition and tolerance for gawkers he attracted.

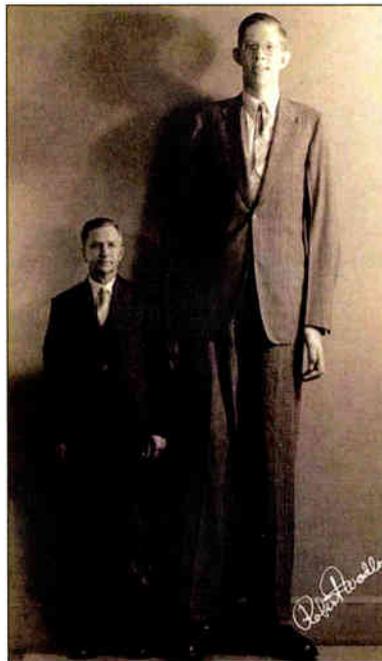
In comparison, the proposed giant cross isn't generating "too much of a stir," the Post-Dispatch reported. "Only two residents came forward with concerns at a commission hearing earlier this month."

Drudge made the news of the cross seem a little breathless when he added an exclamation point to



the newspaper's original headline: "Cell tower may be built inside cross!" Sort of like Ripley's *Believe It or Not*. Where Wadlow received attention from Robert Ripley in his time during a decade or more of notoriety, Alton's proposed 95-foot cross/tower received a flash of attention from Drudge and perhaps is destined to become a mostly unnoticed part of the landscape as other disguised, concealed and camouflaged cell towers have done. There may have been times when Wadlow might have wished for the same. agl

Pictures of the Month:



Robert Wadlow of Alton, IL, the world's tallest man, with his father Harold Franklin Wadlow.



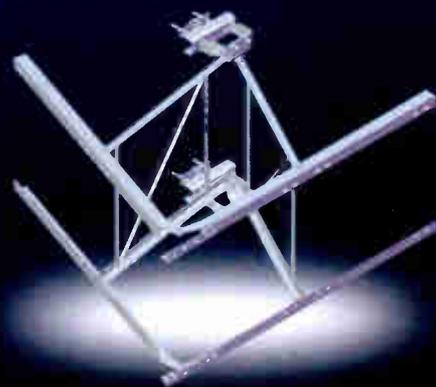
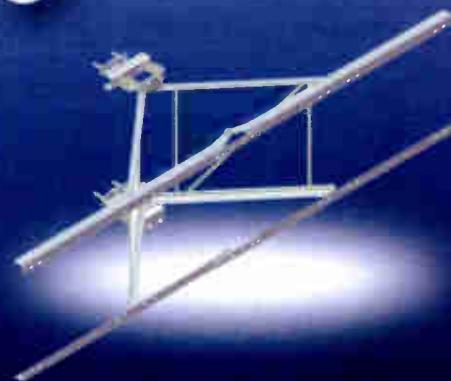
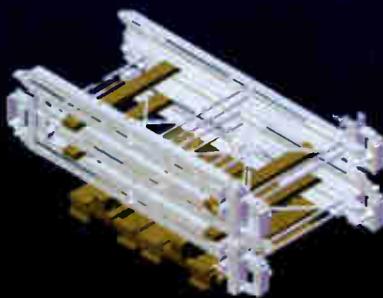
A construction crew places antennas and transmission lines on a cross-shaped tower on church property.

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PCIA sets 2008 agenda

by Jacqueline McCarthy, esq.

The message heard earlier this fall at PCIA's Wireless Infrastructure Show 2007 was clear: It's another expansion period for the wireless industry. That outlook for 2008 has important implications for wireless infrastructure deployment and will require PCIA to support its members' capabilities in providing the necessary platform for industry expansion.

The deployment and launch of new wireless services arising from the 2006 Advanced Wireless Services (AWS) auction will result in new market entrants, as well as service expansions for existing providers. In addition, the 700 MHz spectrum auction scheduled for early 2008 is a huge opportunity to advance the deployment of broadband services.

The growth of the wireless industry resulted in a significant milestone last year: In 2007, the number of households with a mobile device and no "land line" exceeded the number of households with no mobile device.

There are now more mobile lines than wired lines in the United States. These "tipping points" in wireless usage have major implications for public safety, economic development, and personal communications. They are also a vivid reminder of how our members' roles as wireless infrastructure providers contribute in so many ways to modern society.

As the deployment of AWS networks

come to fruition in 2008, network operators must have access to robust infrastructure with minimal regulatory barriers to entry. Similarly, the FCC's aggressive build-out requirements planned for the upcoming 700 MHz auction will place a significant responsibility on licensees, and the infrastructure providers who serve them, to deploy quickly in many markets.

To this end, PCIA works with local jurisdictions to promote a sensible approach to zoning applications that allows timely and cost-effective network deployment. PCIA seeks opportunities to educate jurisdictions on how overly burdensome zoning ordinances and the influence of obstructionist consultants leads to a degradation of quality of communications services, threatening public safety and economic vitality.

PCIA engages state legislatures to enact siting legislation that limits local jurisdictions' unfettered ability to unreasonably restrict or delay siting applications. Recent legislative successes in California and North Carolina have given us valuable experience in marshalling local resources, knowledge and experience to pursue legislation.

Every year, another set of priority states will be selected as we try to improve the situation throughout the country. At the federal level, PCIA advocates the interests

of the industry on numerous issues before federal agencies, including the FCC, FAA, EPA and Interior Department.

In 2008, PCIA will continue to promote wireless infrastructure as an essential component to well-connected, economically vibrant and safe communities through participation with the American Planning Institute, National Conference of State Legislatures and National Association of Counties, as well as with other intergovernmental organizations. With expansion on the horizon, PCIA remains devoted to its core responsibilities of promoting empowerment, collaboration and organization for the industry, indeed enabling the wireless future. **agi**

Jacqueline McCarthy, esq., is director of government affairs at PCIA — The Wireless Infrastructure Association, Alexandria, VA.

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Forum Launches Interactive Website

by **Connie Durcsak**

In just a few short years, distributed antenna systems (DAS), an infrastructure innovation rife with both

interest and ambiguity, seems to have risen from the dubious position of "deployment option of last resort" to taking a seat at the wireless infrastructure solution table. Nowhere was this trend more in evidence than at



PCIA's 2007 Wireless Infrastructure Show, this past October. DAS Forum events and educational sessions drew record attendance, and the conversation had markedly shifted away from the downsides of DAS to focusing on design and technological developments in this burgeoning marketplace.

Allen Dixon, president of the DAS Forum Council of Founders and Corning Cable Systems' market development manager for wireless, noted that DAS has reached a tipping point in the panoply of wireless infrastructure solutions. The variety and diversity of successful existing DAS deployments and the volume of anticipated future

deployment environment account for some of this growth. However, the design and expansion flexibility inherent in DAS architectures is also appealing, particularly in dense urban and residential environments that need to accommodate additional voice and data loads.

Despite a promising future, and as with all emerging technologies, DAS continues to pose questions: Where is DAS appropriate and, in fact, even desirable over other architectures? Where is it not? What can be done to reduce costs, minimize risk, and continue to deliver carrier grade performance? How can industry stakeholders and communities work together to ensure mutual goals are met?

These issues and more will form the centerpiece of the DAS Forum's work during the coming year. The DAS Forum membership draws from a broad base of carriers, DAS providers, equipment

manufacturers, professional services providers, and municipal consultants, each providing a unique perspective which, taken in aggregate, provides a rich and comprehensive view of the DAS landscape.

Building on its success in its inaugural year as the "go to" resource for industry, governments, academics, the media, and concerned citizens seeking information about distributed antenna systems, the DAS Forum has launched a new logo and website: www.thedasforum.org. Features of the highly interactive site include a "bulletin board" where interested visitors can exchange information, ask or answer questions in virtual "real-time," a news section that is updated daily, event postings, video downloads, case studies, model legislation and more.

The DAS Forum's Advocacy Committee will provide information-sharing

The DAS Forum is positioned to serve as a credible provider of reliable information specific to this technology.

builds to remedy specific coverage or capacity challenges prove the viability of DAS.

The need for low-profile designs and inconspicuous sites in response to an increasingly challenging deploy-

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A visitor looks inside the equipment box at the base of a DAS node in Hilton Head Island, SC, during a tour arranged by the DAS Forum.

DAS Forum is positioned to serve as a credible provider of reliable information specific to this technology.

In addition, the Advocacy Committee provides a forum for DAS stakeholders to advocate for government action that properly recognizes the uniqueness of DAS as a wireless infrastructure solution. For example, the DAS Forum filed

low-profile nature of most DAS installations. Also, in November 2007, the DAS Forum participated in the National League of Cities' Congress of Cities & Exposition, where members and staff discussed the role of DAS as a targeted deployment solution with key municipal decision-makers.

Similarly, the Market Development and Technology Committees will continue their work toward developing standardized approaches and solutions to facilitate deployments.

Clearly, wireless infrastructure is expanding, and there is no doubt that DAS will play an important role in the deployment of some of the most innovative and compelling technologies in our time.

and collaborative opportunities to explore the complex issues at the nexus of DAS and wireless siting regulation. Through its access to governmental entities regulating DAS deployment, the

a Petition for Reconsideration with the FCC in August 2007 to express that the application of proposed back-up power requirements to DAS nodes is infeasible because of the

Durcsak is senior director of industry services with PCIA and executive director of the DAS Forum. Visit the DAS Forum at www.thedasforum.org.

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Fires Can Be Deadly

When the siren sounds, it may be too late. Take steps to prevent fire and steps to protect workers, contractors and yourself, should fire occur despite the best effort at prevention.

By David Saul, AAI



You've heard fire and rescue vehicle sirens wailing in the night, haven't you? If you're away from the office or job site at the time, the sound might bring on a feeling of concern for the safety of your employees. Or you

might even wonder whether there's a fire at home.

Are you proactive in addressing potential fire dangers at your tower site? Here are steps that tower owners should take:

- Eliminate build-up of weeds and brush surrounding your compound.
- Make periodic inspections of batteries, generators and fuel storage tanks owned by your tenants. Although your tenant has the ultimate responsibility, it is always prudent to avoid unwanted surprises and to eliminate

legal action in the event of a claim.

- Provide written guidelines for tenants and their subcontractors concerning welding. This year has seen several monopole "Roman Candle" fires. These claims could have been avoided with proper oversight. Having written guidelines in place beforehand places the blame on others and not *your* insurance company.
- Enforce a non-smoking perimeter around the compound due to the presence of combustible fuel sources.

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The three leading causes of industrial fires include:

- electrical failure or misuse of electrical equipment.
- friction, foreign substances or open flames.
- smoking and matches.

What can we, as employees, do to combat these hazards? We can comply with regulations.

We can also watch for frayed electrical cords and overloaded circuits, and dispose of flammable wastes and scraps by placing them in metal containers.

Store combustibles in a safe area. Combustible materials and fumes from paint, solvents, and other flammables are responsible for fires at home and at work. Fumes can travel a considerable distance and become ignited by a furnace, stove, electrical equipment, or even a lit cigarette. If you need to dispose of flammable liquids, do not pour them down the drain.

Also, if you have to burn waste paper, make sure it doesn't contain explosive materials, such as aerosol or paint.

Become familiar with the location and operation of fire fighting equipment. Review where fire extinguishers are located and what types of fires they are to be used on. And conduct periodic fire drills to practice fire response procedures.

Proper maintenance procedures are also important to fire safety. If you use electrical equipment or tools, inspect them regularly to make sure they are working correctly. Keep mechanical equipment properly lubricated to avoid excessive friction. And keep spark arrestors on exhaust systems.

Even if these things do not directly concern you, it's still your responsibility to keep your eyes open for safety hazards and report them to your supervisor. It's *everyone's* responsibility to eliminate safety hazards.

Being prepared to safely evacuate a building or worksite is critical to maintaining your health and safety on the job. How would you escape from your worksite in the event of an emergency? Do you know locations of all exit routes in case your first choice is too crowded? Are you sure doors would be unlocked or that other exits, such as hallways, would not be blocked during a fire.

explosion or other crisis?

Use these evacuation tips to prepare for a workplace emergency.

Evacuation preparation

Be familiar with the worksite's emergency evacuation plan.

Know the pathway to at least two alternative exits from every room or area at the workplace.

Recognize the sounds or signaling

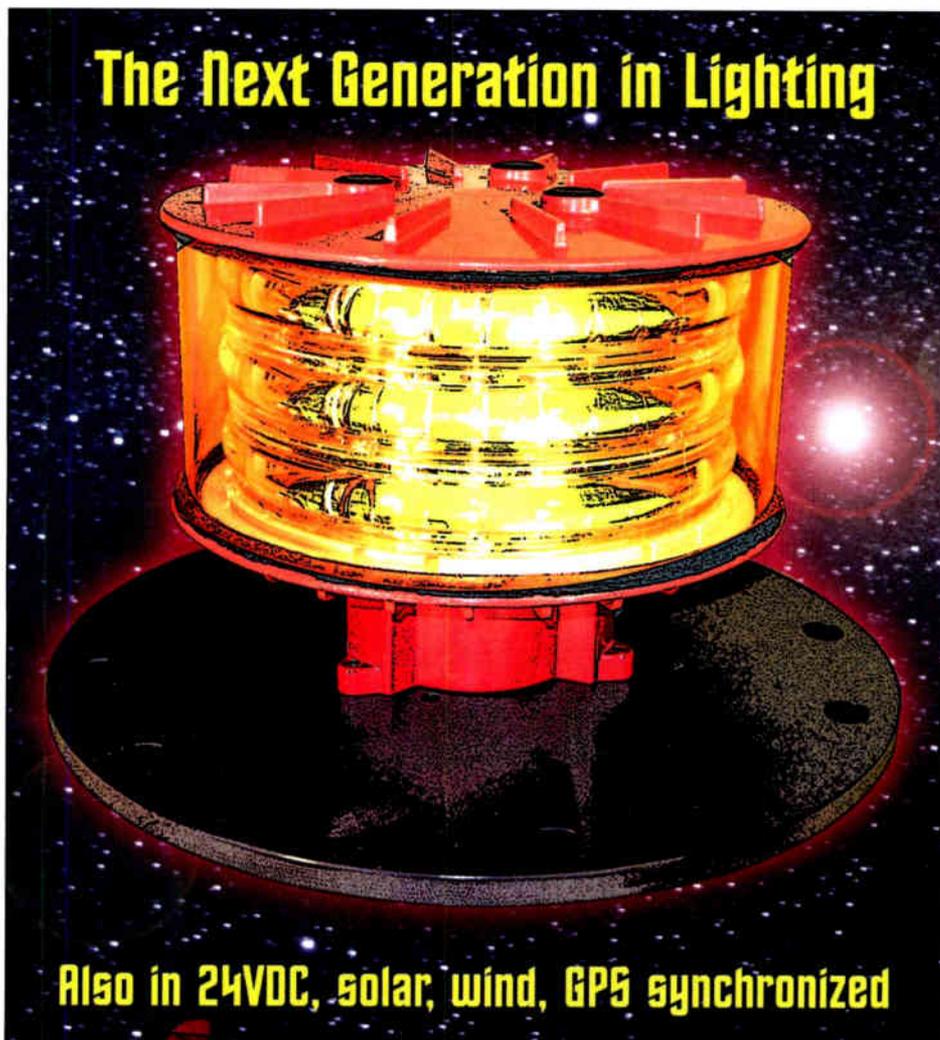
method of the fire and evacuation alarms.

Know who to contact in an emergency and how to contact them.

Know how many desks or cubicles are between your workstation and two of the nearest exits so you can escape in the dark, if necessary.

Know where the fire and evacuation alarms are located and how to use them.

Report any damaged or malfunctioning safety systems and back-up systems.



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risky business

Steps tower owners should take

- Eliminate weeds
- Inspect batteries, generators and fuel
- Give guidelines to tenants and subcontractors
- Enforce 'no smoking'

Evacuating safely

Leave the area quickly, but in an orderly manner, following the worksite's emergency evacuation plan.

Go directly to the nearest fire-free and smoke-free stairwell, recognizing that in some circumstances the only available exit route may contain limited amounts of smoke or fire.

Listen carefully for instructions over the building's public address system.

Crawl low, under the smoke, to breathe cleaner air if there is a fire.

Test doors for heat before opening them by placing the back of your hand against the door so you do not burn your palm and fingers.

Do not open a hot door, but find another exit route.

Keep fire doors closed to slow the spread of smoke and fire.

Avoid using elevators when evacuating a burning building.

Report to the designated meeting place.

Do not re-enter the building until directed by authorities.

What to do if you're trapped

Stay clam and take steps to protect yourself.

Go to a room with an outside window, and call for help if possible.

Stay where rescuers can see you and wave a light-colored cloth to attract attention.

Open windows if possible, but be ready to shut them if smoke rushes in.

Stuff clothing, towels or newspapers around the cracks in doors to prevent smoke from entering your room.

Preparing in advance to safely evacuate a building or worksite can be critical to your safety. Take the time now to think about evacuation procedures and how you would respond in an emergency. **agl**

David Saul is vice president of Atlantic Risk Management, Columbia, MD, and an accredited advisor in insurance (AAI). His email address is: dsaul@atlanticrisk.com.

25 States—and Counting

With much of the country represented by state wireless associations, the national program readies additional states for 2008.

By Pat Tant

The State Wireless Association Program (SWAP) and individual state wireless associations enjoyed success at the October 2007 PCIA Wireless Infrastructure Show in Orlando, FL. Excitement about SWAP was evident. I heard much talk about the national program that drives and guides individual state associations. After only two-and-a-half years in the making, 19 associations have formed, encompassing 29 states. This seems to be an amazing accomplishment as I think back to February 2005 when Connie Duresak and I were developing this idea, naming the program, and sketching out our vision and hope that half of the country—25 states, specifically—would be involved in a state association over the following five years. We easily passed that dream in only two short years, and the program continues to grow and expand.

One big news item for SWAP was the announcement of Nancy Chrisman joining PCIA. Janet Gill served as the

first national director of SWAP over the past year and left PCIA to join me at Excell Communications. PCIA is fortunate to have Nancy step up and accept this important role to both PCIA and SWAP. She will lead the country in establishing future associations and serve as a resource for the help or assistance existing groups may need.

SWAP hosted a Presidential Dinner on Monday evening. This was our third annual event and is held to not only thank our presidents for their dedication and leadership to state wireless but to share ideas and “swap” lessons learned throughout the associations. Jeff Stoops, chairman of PCIA and CEO of SBA Communications, was the guest speaker. He spoke about his personal commitment to the SWAP movement.

The show floor opened on Tuesday with SWAP proudly sponsoring a 20 x 20 booth exhibit which this year featured SWAP, the national program. In the past two years, we allowed each state to help



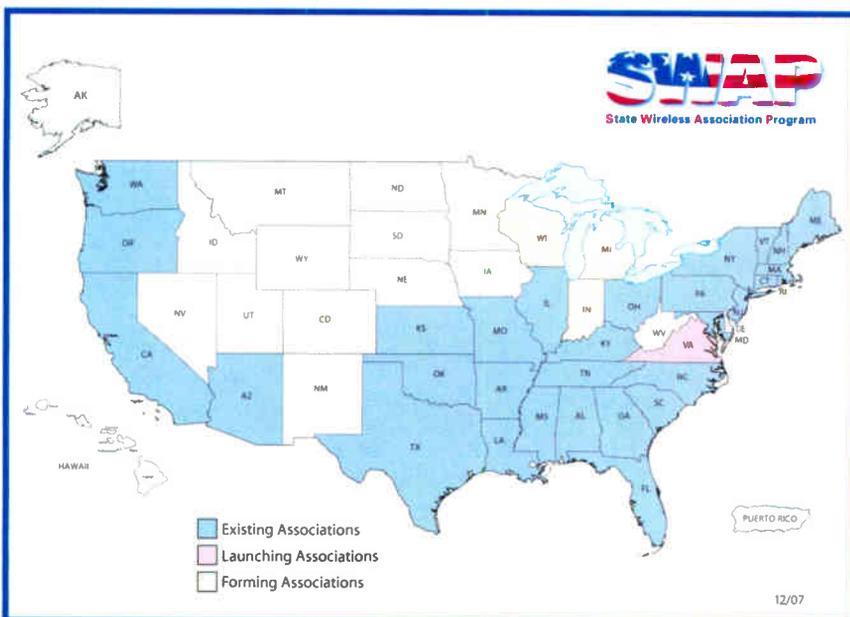
The SWAP booth featured a history of the program, information about current activities and a vision of the future.

sponsor the booth area. With so many states, it was difficult to have banners for individual associations. This year, emphasized SWAP—the actual program—and what we have accomplished. The booth featured a history of SWAP, what is happening today and a look at the future.

SWAP launched the morning sessions on Thursday with a panel consisting of the new National Executive Committee. Janet Gill moderated the session, and joining me as panelists were Hunter Stuart, Andy Rotenstreich, Jeff Peters and Doug Dimitroff. The panel members discussed their new roles as part of a national committee and plans for the upcoming year. We will feature some of these new initiatives in later issues and keep you updated about SWAP happenings.

Although more people have become familiar with SWAP, it was good to still have inquires about how to form an association. I encourage anyone who lives in a state without an association to contact Nancy Chrisman at nancy.chrisman@pcia.com. agl

Tant is senior vice president of Excell Communications and Network Partners.



Spotlight on: Georgia Wireless Association

Association Name: Georgia Wireless Association (GWA)
 Meeting Location: Atlanta, Georgia
 Date Formed: 2004
 State Charity: Advocates for Children
 Multiple Sclerosis Society of America
 President: David Downie
 BCI Communications, Inc
 1959 Kentland Place
 Snellville, GA 30078
 404-423-4521
 downied@bcisites.com



President's Message:

It is hard to believe that the Georgia Wireless Association (GWA) is nearing the end of its fourth year in existence. As I look back to when a small group of people got together at the end of 2003 and decided that Georgia could benefit from an association like the ones in Tennessee and Alabama, it is hard to believe just how far not only the GWA has come, but also how far the whole notion of the State Wireless Association Program (SWAP) has come.

The GWA's purpose and goals are to promote positive industry awareness, cultivate relationships, and enable professional development of its members by providing educational opportunities, information, and a forum for collaboration among industry and community representatives. We have had guest speakers ranging from Michael Gearon (then president of American Tower International) to Ed Reynolds (then president of Network Operations for Cingular Wireless). GWA has held numerous educational sessions, including the Regional Regulatory Roundtable for SHPO Section 106/NPA, which was a joint collaboration between the GWA, AWA and TWA, and which had two directors from the FCC, the SHPO representatives from all three states, as well as representatives from five Native American tribes. We also just held the 4th Annual GWA Golf Tournament, which this year had 240 golfers. Over the past four years the GWA has raised about \$40,000 for various charities. The board members of the GWA continually strive to fulfill the purpose of the GWA, and we hope to continue to meet these goals over the years to come.

I would like to thank the entire board of directors (which include our officers and committee chairs) of the GWA, who give of their time and resources to help make the GWA a success. I would also like to thank all of the GWA members who come out and support this association at our meetings and functions. I look forward to hopefully seeing you at one of our future events.

Below is our schedule of events along with our board members. The GWA has an annual set schedule in an effort to allow people to plan for and schedule in advance their attendance.

Calendar/Events

- March: 1st Quarter Meeting – Atlanta
- June: Joint Meeting of TN, AL, GA Wireless Associations – Chattanooga
- August: 3rd Quarter Meeting – Atlanta
- October: Annual Charity Golf Tournament – Atlanta
- December: Holiday Social – Atlanta

Board Members

- Vice Presidents: Richard Pope *richard.pope@comcast.net*
- Secretary: Joe Dean *jdean@sitesafe.com*
- Treasurer: Bill Weiland *bweiland@tacora.com*
- Attorney: Maria Mucha *mmucha@telecomlegalservices.net*
- PR/Social: Kenton Wallace *kenton.wallace@att.com*
- Co-Chairs: Bart Williams *bwilliams@demandodcs.com*
- Membership: Tiffany Allen *tiffany.allen@charter.net*
- Co-Chairs: Wendy Doyle *wendy.doyle@comcast.net*
- Regulatory: Kimberly Adams *kiadams@bellsouth.net*
- Co-Chairs: Barry Gannon *Barry.gannon@americantower.com*
- Wanda Strickland *Wanda.Strickland@crowncastle.com*
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- Co-Chairs: Paul Clewell *p.clewell@velocitel.com*

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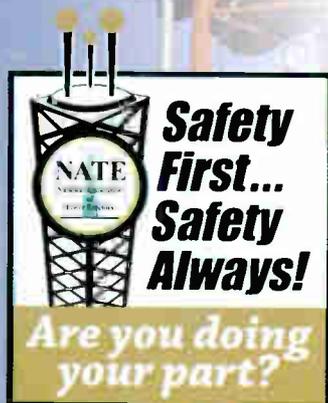
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- Membership Plaque & Certificate*
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- Website Link*
- Committees & Subcommittees*

Backup power and surge protection form essential elements for many telecommunications antenna sites. Here are some selections from new products available to fit the need.

Backup Power

Engines Meeting New EPA Standards Expected early in 2008

Katolight expects to introduce Natural Gas (NG) and Liquid Propane (LP), as well as diesel fueled engines in the first and second quarters of 2008 that meet the new, more stringent standards set by the Environmental Protection Agency. The final rules for emissions standards regarding these fuel types used in Stationary Spark Ignition Internal Combustion Engines are expected to be published mid-December. Katolight maintains a prototype program testing new engines.

<http://pilot.katolight.com>



Site Backup Generators

Generac's expanded line of diesel and gaseous-fueled gensets is designed for a wide variety of telecom applications. Site and equipment requirements can be matched through a wide range of kilowatt outputs that are available — 20, 25, 30, 35, 40, 50, 60, 80, 100, 135, 150, 180 and 200 (higher output units are also offered). Double-walled diesel fuel tanks are available in three standard sizes, with tank depths of 12, 24 or 36 inches for extended run times.

www.generac.com



Hydrogen Fuel Cell for Communications Backup

ReliOn hydrogen fuel cell products are designed for communications backup power applications. The T-1000 and T-2000 feature Modular Cartridge Technology, which is hot swappable for ease of maintenance and simplicity of design. The product may be configured to provide extended runtime for load requirements ranging from 600 W for low power/low capacity installations to 12 kW for higher power/higher capacity sites. The fuel cells only emission is a small amount of warm water and they meet the recent FCC mandate for eight hours of backup power in communication sites.

www.relion-inc.com



Online UPS Systems

Tripp Lite's SmartOnline UPS Systems are designed to provide the highest level of power protection for mission-critical applications. True on-line operation completely isolates connected equipment from all power problems: blackouts, brownouts, surges, line noise, even harmonic distortion. Double-conversion operation continually converts incoming AC power into DC power, and then converts it back into AC power. The unit also features pure sine wave output, zero transfer time to battery, automatic internal or manual bypass, a variety of input/output voltages, three-phase models, hot-swappable models. A full range of tower and rack-mount models are available from 750 VA to 10 kVA.

www.tripplite.com



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IdaTech's ElectraGen family of fuel cell solutions are designed to meet the backup power needs of telecommunications applications. The fully integrated XTi fuel cell system provides power while eliminating the need for on-site hydrogen storage. The XTi is available in 3 kW and 5 kW outputs and provides the 48 VDC backup power required by telecommunications networks to provide a replacement or supplement to traditional solutions such as batteries and gensets.

IdaTech's ElectraGen backup power systems are based on a modular and scalable design and will replace battery-only backup systems. Transitioning to the ElectraGen product line to supply backup or critical power also eliminates problems associated with lead acid battery-only solutions, including unpredictable performance and hazardous disposal, which greatly increases system reliability.

Advantages of the IdaTech ElectraGen solutions are compact and designed for low maintenance requirements with annual inspection periods. Zero emissions make for an environmentally friendly alternative to other fuel-dependent backup units.

www.idatech.com

In-Ground UPS

Solis Energy has introduced In-Ground AC DC Uninterruptible Power Supply (UPS) for powering security/surveillance cameras, Wi-Fi hotspots, WiMAX radios on gang switched street lights and utility poles that typically do not get power during the day and in areas where utility poles are overcrowded or undersized and cannot support an additional attached power source.

www.SolisEnergy.com

Interactive UPS

The Minuteman EnterprisePlus line of interactive sine wave UPS systems from Para Systems combines line interactive technology with several other features, such as the ability to increase the capacity of the unit without migrating to larger models and load shedding, which extends run time by removing power to non-essential devices. The independent battery bypass allows the UPS to provide voltage regulation with surge and spike protection. Battery recharge times are reduced by the use of independent battery pack chargers.

The UPS line is available in 750 VA to 3000 VA. Both 120 V and 208 V models available and is designed for small and medium sized business, using voice over IP, telephone switches as well as enterprise networks and servers. The unit can be mounted in a traditional 17-inch rack.

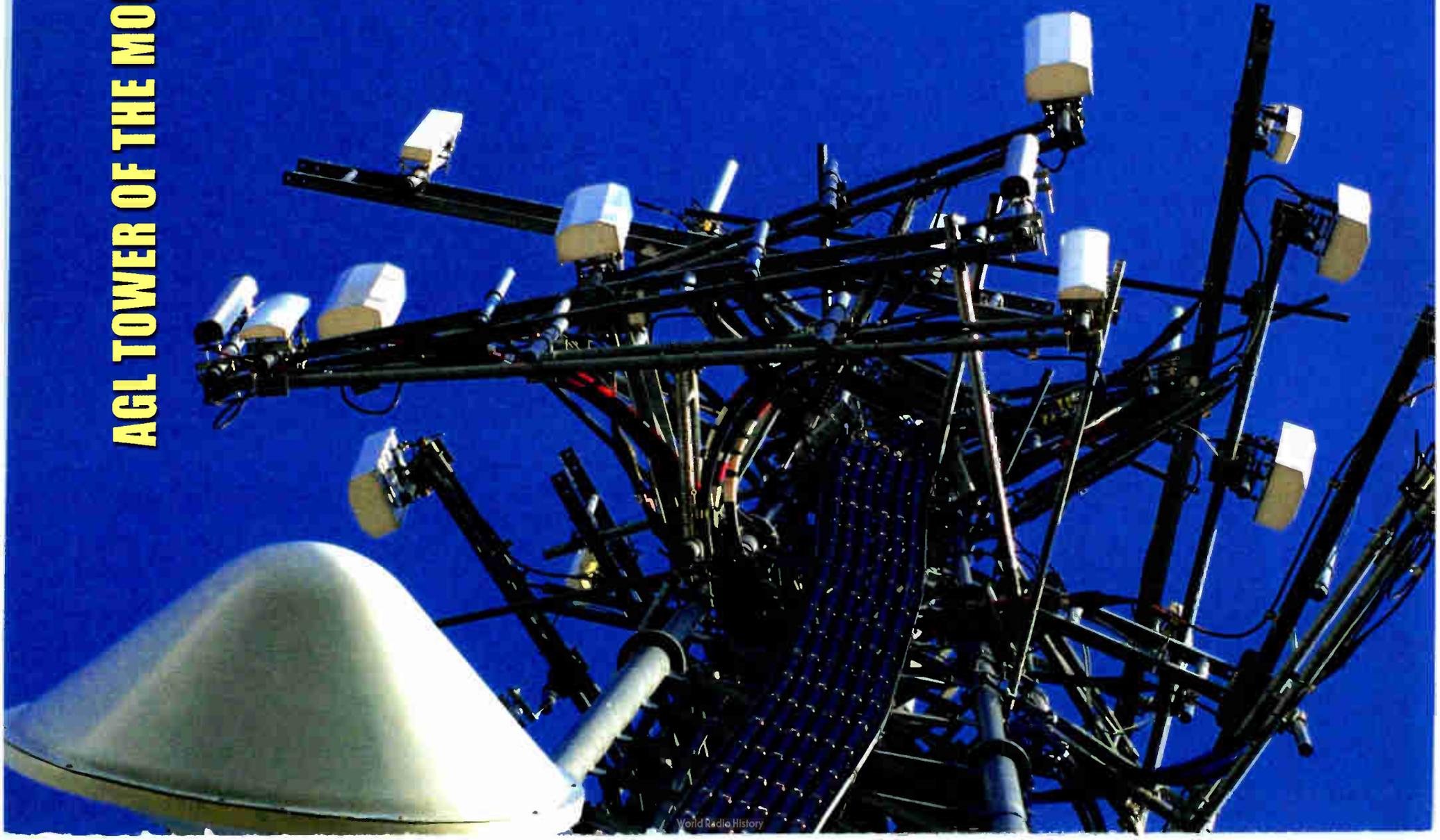
A virtually an unlimited number of battery packs can be connected to the EnterprisePlus UPS for extending run times. The unit can be installed as a floor-standing tower, 19-inch rackmount, 23-inch rack/cabinet or wall mount installation.

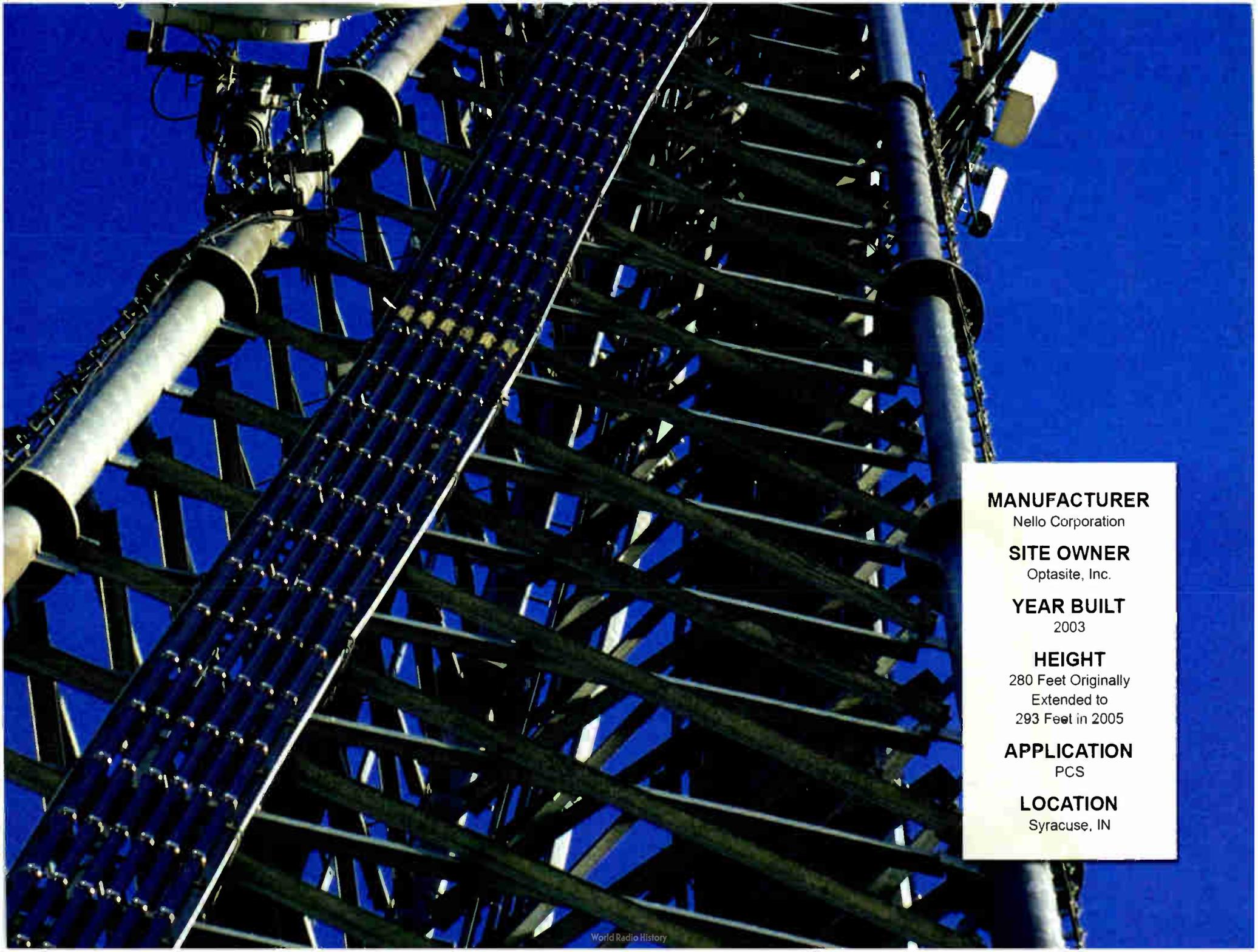
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continued on page 40

DECEMBER

AGL TOWER OF THE MONTH





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SITE OWNER

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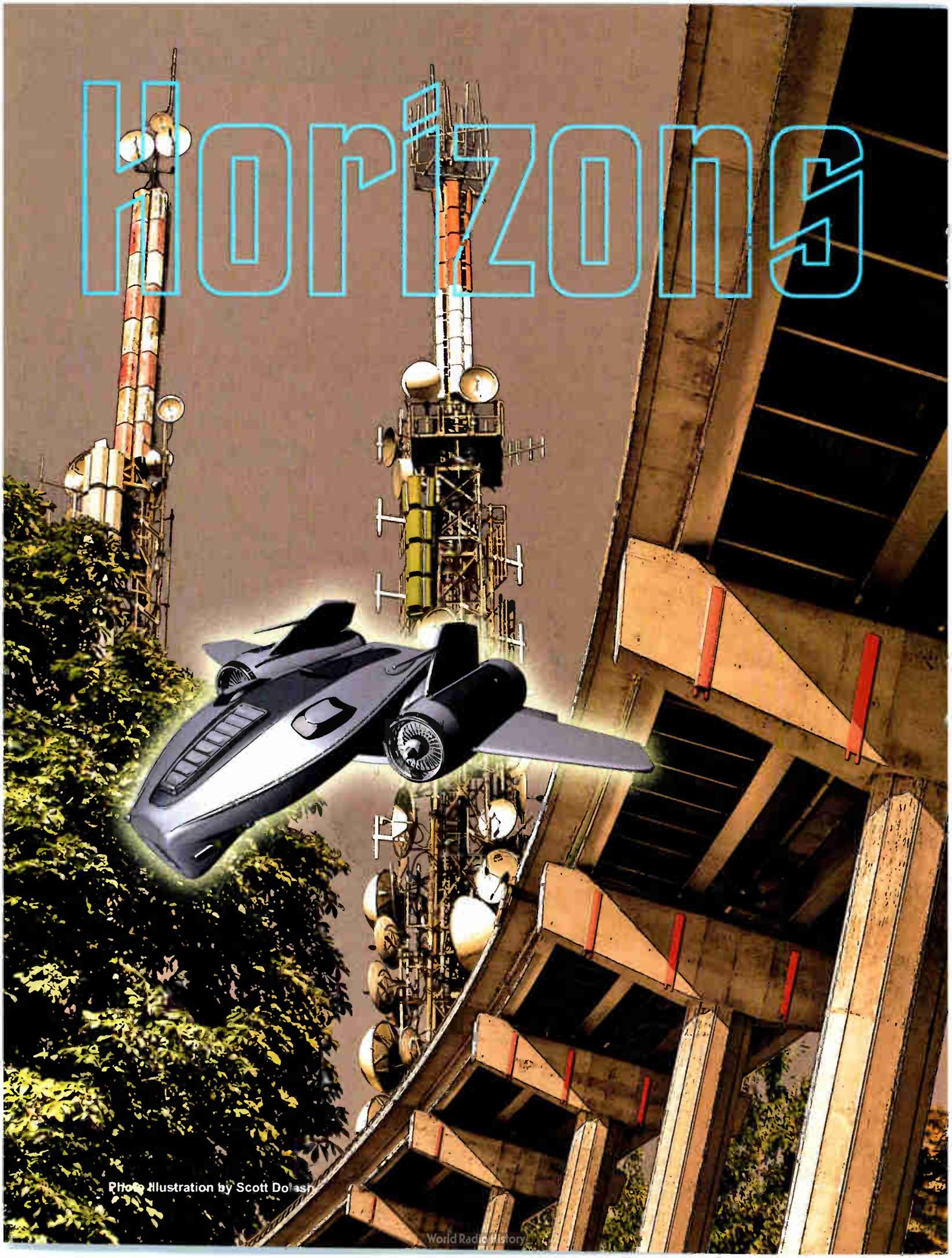
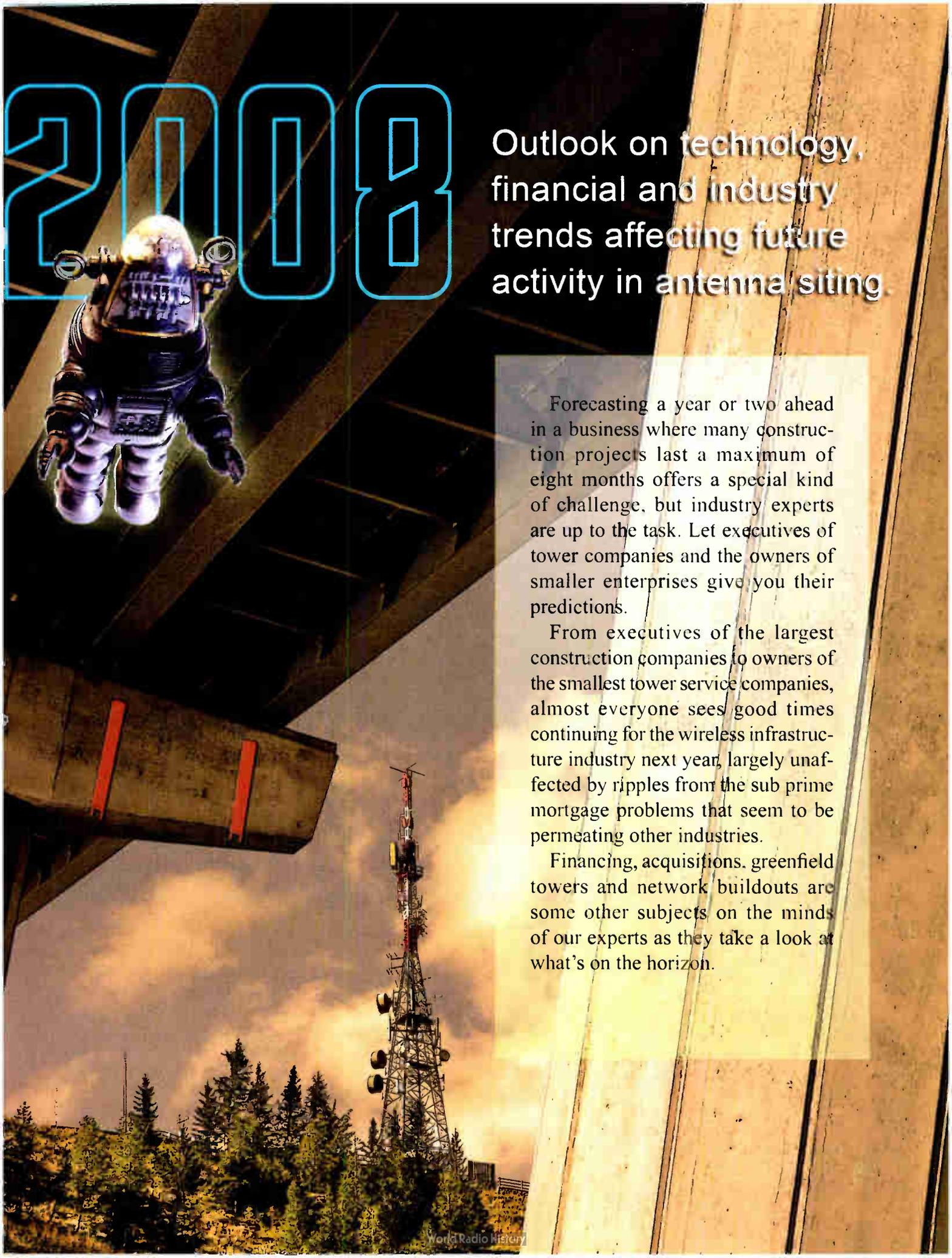


Photo Illustration by Scott Dolash

2008



Outlook on technology, financial and industry trends affecting future activity in antenna siting

Forecasting a year or two ahead in a business where many construction projects last a maximum of eight months offers a special kind of challenge, but industry experts are up to the task. Let executives of tower companies and the owners of smaller enterprises give you their predictions.

From executives of the largest construction companies to owners of the smallest tower service companies, almost everyone sees good times continuing for the wireless infrastructure industry next year, largely unaffected by ripples from the sub prime mortgage problems that seem to be permeating other industries.

Financing, acquisitions, greenfield towers and network buildouts are some other subjects on the minds of our experts as they take a look at what's on the horizon.

Financial and Site Development



Optasite Vision

A mid-sized tower company sets an example for the future.

BY JAMES H. ROSS III

In an industry where the large, publicly owned tower companies have acquired most of the mid-sized companies, Optasite has grown to occupy that middle space almost by itself. Here's an outlook from its chief development officer, James H. Ross III, as told to Don Bishop.

Capital helps ways companies such as Optasite to grow. For example, last year we announced a \$150 million credit facility with Morgan Stanley and we closed on

26 above ground level

another \$50 million in subordinated debt with the same lender in October.

Despite debt market turbulence, we received interesting terms. The covenant package and structure and rates were attractive. We intend to grow our portfolio prudently by buying and growing attractive towers.

Lenders are attracted by a solid business plan. We've been able to buy towers that have performed consistently and driven multiples down by adding addi-

tional tenants to the towers at a pace that is significantly above the market.

Our tenant base is primarily wireless broadband cellular and PCS with new entrants like Clearwire and FiberTower. FiberTower and its competitors are increasingly adding to the towers. We see a significant upward trend in the next 18 months.

Advanced Wireless Service auctions will add players. MetroPCS and other competitors won spectrum and are start-

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nancy.chrisman@pcia.com



Enabling the Wireless Future.

Forecasting weather ... ah ... site development

BY LARRY LOUK

In July 1997, when three partners and I formed our company to provide site acquisition, engineering and construction management services for wireless infrastructure, we thought it would last four years, tops. I mean, just how many towers could these wireless companies build, right? Certainly the market would be saturated in a few short years.

Such is our ability to forecast. Forecasting what is going to happen in our business more than six months out is like forecasting the weather seven days out.

Wireless companies' budget cuts sometimes are conveyed with a moment's notice to their local site development managers, and a healthy project goes up in smoke. Most projects normally last no longer than eight months, so forecasting is no easy task.

Forecasting is really strategizing. Where is work coming from in the next two years? Where should we focus our business development resources to lock down the future work? Which clients are doing what kind of work? And, most importantly, what type of work is going to be the most profitable?

New site builds: Rural coverage expansion will lead the "new build" site development by traditional wireless carriers. The last push to reach those remaining "pops" should be the focus. WiMAX is here, but it takes a lot of capital to build a wireless network from scratch. New market builds will increase, but there will be relatively few "new

market" builds by second-tier wireless companies. Wireless carriers will vie for each other's customers, leading to additional capacity and infill sites at about the same rate we've seen over the past couple of years.

Site/equipment modifications and overlays: Most carriers have completed or are completing 4G/UMTS overlay work, and it should be finished within 12 months. This work has probably peaked, but it will continue to keep companies busy that already have a piece of it.

Tower analysis: As more jurisdictions and wireless companies adopt the new Rev. G standard, design of tower modifications will become a large part of tower analysis work. Tower replacements will become the norm. Leasing, zoning, permitting, design, and construction management will be in play. Many towers will be "over stressed" as they currently stand. Consider: Wireless Company "A" owns a tower that has two collocators, B and C. Company A wants to add or replace some antennas on its own tower. The tower is already "over stressed" under the new G standard. What to do? What can it do? Have you been seeing any "weird" provisions in collocation leases lately? Hopefully, B and C read the fine print.

To the wireless companies: This is a profitable business. Hire enough competent personnel to handle the volume in a timely manner. If the reason you're not processing applications in a timely manner is for competitive coverage purposes, let your market-

ing and sales teams compete; there is no reason to compete in the site development arena. Cooperating with local competitors will only get your sites on the air faster in the long run.

PCIA, state wireless associations and wireless companies should meet to adopt guidelines and timelines for processing collocation applications. Local governments should adopt and mandate these guidelines and timelines for the processing of collocation applications by the tower owner. Institute fines or penalties for noncompliance.

Shareholders should be informed of the amount of value gained by a public company that encourages collocation and the value lost by a company that discourages collocation due to the untimely processing of collocation applications.

As jurisdictions have tightened up zoning ordinances, collocation is now the norm. Wireless carriers must cooperate with one another in the development arena if they want to get their new products to market in a timely manner. Maybe it would be a good idea for the local site development managers to institute a monthly "take your competitor to lunch day."

Larry Louk is vice president of Selective Site Consultants, an 80-employee company with headquarters in Overland Park, KS, (Kansas City area) and offices in St. Louis; Minneapolis; Omaha, NE; Oklahoma City and Houston. agl

ing to deploy in urban and suburban areas. New players like cable TV getting into the marketplace and Google, which announced a foray in 2008, make it an attractive marketplace for new growth. Incumbent players continue to spend billions of dollars expanding and enhancing networks for data services and voice.

Any new services whether high-speed data, mobile TV, live video, enhanced 911 and GPS tax network performance and affect individual areas. It forces carriers to deploy a lot of capital to enhance the networks. It could be increased coverage or capacity that drives new cell site growth. As carriers embrace technology, they embrace more bandwidth. That bandwidth need drives capital spending which directly relates to tenant growth on our towers.

Buying towers

We do exceptional due diligence to assure towers we buy have growth characteristics and it has established our portfolio as one of the best, for its youth, number of antennas and ability to drive lease-ups over time.

Building towers

We will do about 25 greenfield developments this year, in the Northeast primarily, and we love to develop them from the ground up. It's an efficient way to deploy capital, and it's an even better return for investors.

We require intelligence about where carriers need to be to deploy our towers to make sure they will have multiple tenants over time. We don't speculate or engage in built-to-suit. Each is an opportunity where we identified a location that would serve multiple carriers and restrictive zoning requirements and provide a good return for investors in that way.

State wireless associations

State wireless associations evolved on parallel paths, though each is structured differently. We became involved to help us become better citizens in the industry and help us to find ways to serve carrier clients. State associations give us a chance to see carriers on a local and regional basis.

PCIA and CTIA conventions force everyone to get together once or twice a year. Deals have come together six months or a year later after having seen someone face-to-face. Some valuable conversations happen in the lobby.

The industry associations do a great job of keeping up with regulation. It's important for us to comply with aviation, environmental protection and

historic preservation requirements and other regulations from various commissions. Education sessions at conventions are on the cutting edge of operating towers in that regard.

As for the legal aspects, insurance and other important matters, there is a lot of deep dive that is unique to the tower industry. Education keeps us up to date.

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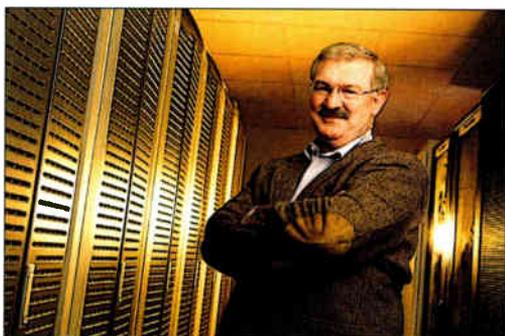
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Moving Parts

BY J.S. "JAKE" MACLEOD

Here's a view from J.S. "Jake" MacLeod, principal vice president and chief technology of Bechtel Communications, an affiliate of Bechtel Corporation, as told to Don Bishop. Bechtel Communications has completed more than 160



projects worldwide, including 106,000 wireless cell sites; 23,000 km of wireline fiber; and communications centers such as POPs, NOCs, and data centers.

Huge opportunities for tower and infrastructure providers lie ahead in Ad-

vanced Wireless System (AWS) spectrum deployments and new 700 MHz systems. AWS spectrum bidders spent billions to acquire large geographic footprints like Spectrum Co, which is an aggregation of Comcast, Time Warner, Cox Cable, and Advance Newhouse—\$2.3 billion spent for 137 licenses.

AWS auction winners will be looking for tower sites, rooftops and more. Many members of the Coalition for 4G, an aggregation of Google, Intel, Yahoo!, Skype, DirecTV and EchoStar, among others, are considering being major players in 700 MHz.

Nontraditional entrants ask, "Where will we put our base stations?" Incumbent infrastructure providers who own the tower and rooftop rights are in a good position.

New technology such as WiMAX needs coverage. That means a higher radiation centerline (RCL). Rooftops will do, in many cases. But they need a high radiation centerline to achieve commer-

cial service coverage objectives without too many holes. As subscribers increase, you can lower the RCL for smaller geographic coverage per site and achieve higher capacity at the system level.

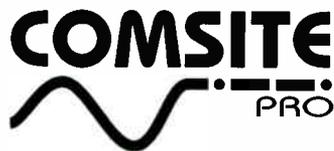
Front Line, Cyren Call and others in the public safety arena need infrastructure built for the 700 MHz band. Public safety entities have infrastructure now, but in different frequency bands.

The industry has a lot of "moving parts." AT&T bought Aloha Partners for \$2.5 billion. They bought 12 MHz of spectrum almost nationwide covering 196 million pops.

The current use of Aloha Partners'



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spectrum is for DVBH, direct video broadcast to the handset. They have a trial system in Las Vegas, NV. When AT&T was asked what they would do with the spectrum, because at 700 MHz, it has excellent building penetration, they said, "We have three choices."

Wild card: Aloha

AT&T said it could use the spectrum for two-way wireless services such as cellular; it could do one-way multimedia, which is what Aloha is doing now in one location in Las Vegas; or it could do a "carrier's carrier" play in which it would sell wholesale access to other carriers.

I don't believe they've made a strategic decision yet. They're waiting to see whether DVBH is going to take off. It went in with a lot of hype, and it's popular in Asia. Over here, it's not catching on nearly as fast as we initially thought it could.

Infrastructure is absolutely the sweet spot. All successful spectrum bidders need it, especially if they're going to be deploying WiMAX because that's a greenfield technology that's starting from scratch. WiMAX providers are expecting 25 to 40 million subscribers by 2012. All indicators for the tower industry and the rooftop industry are positive.

Backhaul

You can have the greatest applications, but if you can't get to the core to access the applications, you're sunk. The optimum backhaul is fiber. Placing fiber everywhere is not practical; it's not cost-effective. In many places you have to have wireless backhaul such as point-to-point microwave or free-space optics. There are a lot of options to achieve high-capacity backhaul.

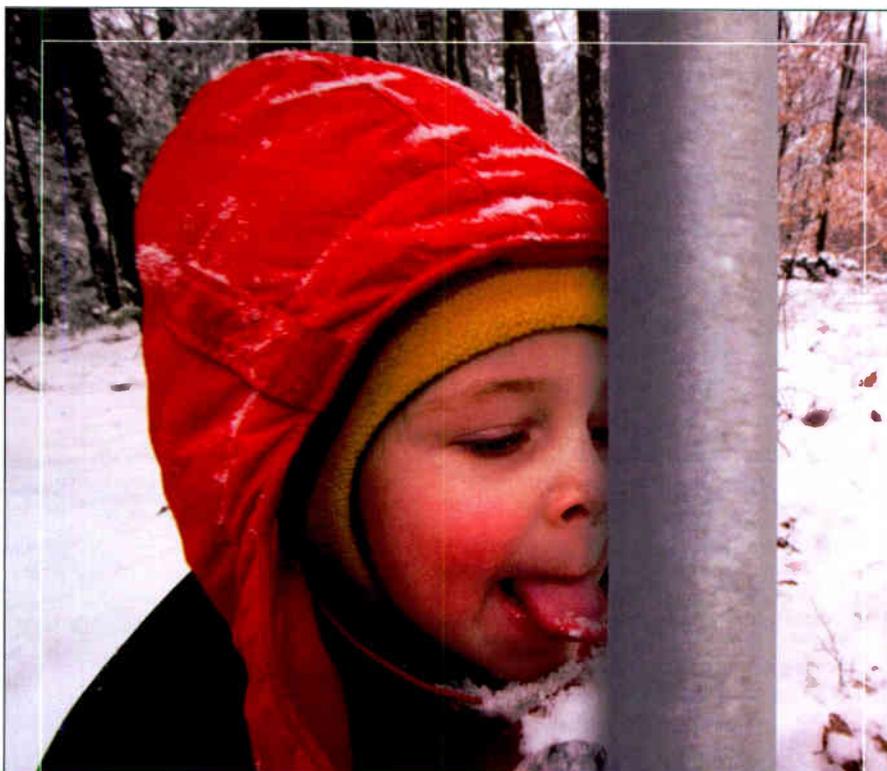
Bank of America Securities estimated pent-up demand for bandwidth at a typical household in 2006 was 28 Mb. With economical, high bandwidth

backhaul, you would have multiple channels of HDTV, video conferencing and other applications, but now carriers throttle the bandwidth with pricing plans to limit demand.

The CEO of Telenor, the largest provider of telecommunications services in Norway and a company with substantial international operations, said demand for wireless bandwidth is doubling every two years in Norway. The CTO and head

of Research and Technology Platforms for Nokia Siemens said that by 2015, we will experience a 100-fold increase in bandwidth demand.

There will be a tremendous effort to fatten the backhaul capacity substantially. We have to look at creative ways to do that, because it's not a simple solution. Point-to-point microwave is a good solution for now, but there are regulatory and technical limitations. agl



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Getting the Biz

BY HANS FIEDLER

Adding WiMAX and adding new carriers will bring new business, and lease optimization is likely to continue, according to Hans Fiedler, national sales manager for Message Center Management, as told to Don Bishop. Fiedler has been in the wireless industry for 16 years. He is responsible for acquisition and leasing at MCM.

An increase in business during the coming year can be expected, thanks to existing wireless and PCS carriers and the Sprints of the world that are overlaying 4G technology on their existing networks. There will be an uptick on existing sites where Sprint is

adding WiMAX. Additional business will come from the likes of mobile data providers, such as Clearwire and Nextlink, which are starting to deploy more aggressively.

I'm hopeful we'll see some action from AT&T, which has been quiet in most of their markets on expansion. We hope some budgets will be lifted in 2008.

New spectrum and consumer demand will play a role, most clearly with Metro PCS, which is putting work some of the licenses purchased in the auction. We'll see the likes of Cricket. I'm not sure we will feel the impact of the larger carriers because the spectrum will be absorbed

into their larger play.

In the next two or three years, we will see what we had in the past—a market with five to six carriers—because the market previously consolidated into four, and now we're seeing the fourth and fifth carrier coming in under a different name. Whether it will last a long time remains to be seen. It may be merged back into four, but we'll see.

Lease optimization

A lot of leases were entered into during the 1990s, and we're reaching some 10-year milestones. The leases escalate every year, so I have a feeling that lease

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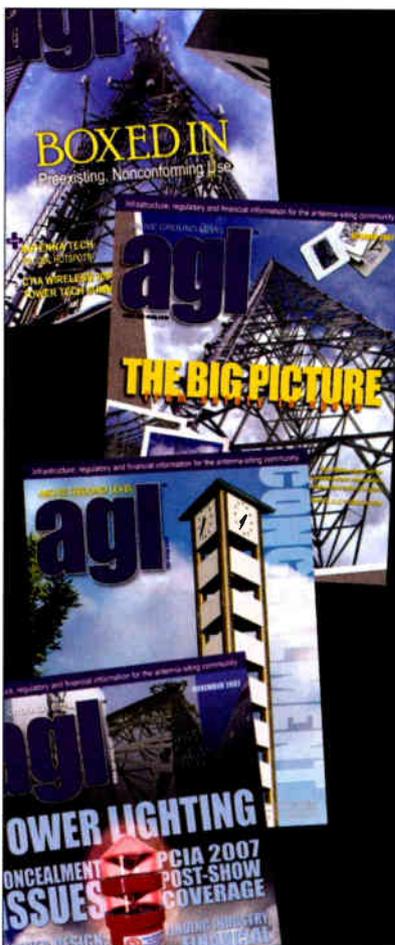
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optimization will be a component of the business for some time to come.

Back in the heyday, leases had 5 percent escalators. Now the standard is 3 percent, and we're seeing glimmers of 2.5 percent.

If you have an agreement that stated an aggressive monthly rate that compounded annually at 5 percent, it's not uncommon to have a site at \$4,000 a month that needs to be revisited by the home office.

If there is a site where a carrier is paying \$4,000 to a landowner, it could very well be receiving so many calls that it is cost-justifiable. Is the site—with T1 and backhaul and license fees and rent, based on the calls processed on a day, for a month or a year—is the site producing effectively? If the answer is yes, lease optimization doesn't come into effect.

If it isn't, companies like Black Dot and others who run programs for companies like Sprint and AT&T and to a

lesser extent T-Mobile will continue to be active. As long as we have the annual percentage increases and optimization of the site is a factor, that always will be considered.

Working at the state level

We have some aggressive game plans for next year, working with troubled areas and commissions that we know are wrestling with wireless, so we are getting out more information to planning commissions in the states.

We need to make sure the states know there is a resource of information from a non-profit organization that's not biased. We need to explain how telecom is woven into the community. Telecom has to be treated like a utility, like water and electricity. "Do you have enough telecom in your neighborhood?" That may sound bizarre, but just as you bring water, electricity and

cable TV to the home, telecom always will be a component.

In Pennsylvania, we try to get that message out to the local communities and the regional APA chapters and hold seminars that we call "Wireless 101." What is wireless, and why is it important? We tackle the myths of why they receive tower applications.

For us, it sounds like common sense, but the more you scratch the surface

We have some aggressive game plans for next year, working with troubled areas and commissions that we know are wrestling with wireless

and meet with these organizations, the more you find people who don't understand how cellular phones work and why towers are needed, and why so many of them. agl



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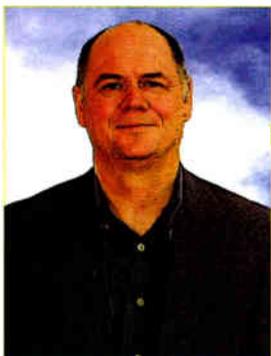
Distributed Antenna Systems

DAS: Take Advantage

There appears to have been a shift of attitude among carriers.

BY ALLEN DIXON

Allen Dixon, the market development manager for Wireless at Corning Cable Systems, also serves as president of the DAS Forum, an organization dedicated to the development of distributed antenna systems. Here is his view of the future for DAS, as told to Don Bishop.



Besides voice communications, wireless users have broadband access and want the same service and connectivity as on their home and office computers. They want to stay connected. That leads you to 3G systems, and with them, you see change in the spectrum the carriers are using. As

they move from 900 MHz and 1.8 GHz to 2.1 GHz and 2.5 GHz, the cell size is shrinking, and by trying to provide reliable data usage, it is shrinking again. You can add cell sites, but it is not easy to get uniform coverage among cell sites. DAS is a solution for filling in those gaps.

Social networking spaces, such as the agreement that MySpace has with carriers, soon could put pressure on broadband wireless access. Also, location-based services that offer the ability to find places or get directions. Streaming music or music downloads are popular. And then another reason to expect growth is the hoped-for advent of mobile video, mobile TV.

Standardization

What I want to drive home is the lowering of barriers to deployment

with standardized ways of deploying DAS. We're working on trying to get aerial installations as a preferred method because aerial is less expensive than buried. We're looking at ways to lower the costs of buried, too.

I'd like to see us begin working with standards organizations to create a uniform signaling protocol between the remote sites and base station hotels so you're not locked into a single-vendor situation when you deploy.

We want to continue advocacy work with municipalities. We want to make sure we're tied into federal regulation as it relates to pole attachment and pole-top access.

With many utility companies, they will allow you to attach to the pole for a fee, but they have rules about transiting from the communications space to the power space. We need

access to the tops of the poles for omnidirectional antennas.

We need to work on developing standardized application and approval processes with the utilities. Delays in approval hurt DAS deployment. We also need to develop realistic expectations on pole line surveys and make-ready costs. These are significant issues that are delaying our ability to provide reliable, effective coverage to wireless customers.

There appears to have been a shift in attitude among carriers from last year from "Should we take advantage of DAS?" to "How do we take advantage of DAS?" Some of the new players who purchased spectrum in last year's auction are taking more advantage of it to get coverage out there quicker.

So many things that could affect the future, such as the proliferation of cell sites and the switch to AWS that will create gaps of coverage will be cre-

ated. We need to decrease the overall cost of deploying DAS.

DAS Forum

Through the DAS Forum we have the ability to provide information about the industry to people who have heard about it and who want information on how to deploy DAS, how much it costs and where it has been used.

Through the Forum, we have been putting on "DAS In Action" events, which are case studies. We have done two this year, and we did three this year: one in Hilton Head Island; one in Andover, MA, and a third at PCIA in Orlando. Those sessions have been well attended.

We have done well in building up the roster. When we launched at PCIA last year, we launched with about four or five founding members, including Crown Castle, Corning, Donohue & Blue and NextG Networks.

Since then, we've grown to nearly

20 members. We have equipment providers such as Powerwave and ADC. We have Crown Castle and other tower companies coming on board now. We have additional law firms. We have two carriers, T-Mobile and Sprint. I'm pleased with our growth.

When T-Mobile joined the Forum, they explained that they look at DAS as a tool in a toolbox. That's the way we think it should be looked at. It will not solve all the problems for coverage or provide all the bandwidth for broadband wireless adoption. But the things it does, it does well. T-Mobile points out DAS is a part of their plan.

T-Mobile has an advocacy group that is used to educate communities about how cell service is offered and the options. They include DAS as a part of that program.

There's a growing acceptance of DAS as a technology and a way of providing service to customers. **agl**

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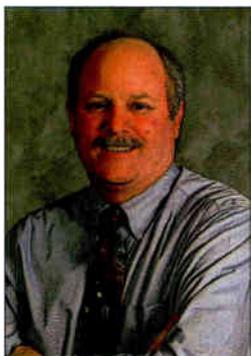
DAS Goes Inside

The building industry increasingly opts to install during construction.

BY JOHN SPINDLER

John Spindler, vice president of marketing at LGC Wireless, predicts increasing interest among building owners and enterprises to install DAS indoors.

Here is his view of the future for DAS, as told to Don Bishop.



Wireless operators remain proactive in the business of delivering coverage indoors.

We are seeing increasing interest direct from enterprises in in-building and more

willingness on their part to pay for installations, particularly in the United States. Enterprises are asking us for in-building solutions to address their equipment in a single building or campus. I see a trend on that side in our business, with as much as 25 percent of the business going direct to enterprise.

That represents a significant up tick. It's been a situation where the carriers put these solutions in on a proactive basis when a public venue like Atlanta Hartsfield or the subway has a lot of users with large capacity requirements, or on a reactive basis because a large customer says it has an issue to resolve,

and we have a contract with you, and we would like to get this squared away.

We're seeing some interest from the construction industry for putting solutions in when buildings are under construction. They recognize that wireless has been displacing wireline as the No. 1 communications tool of choice. People are relying on their wireless devices much more so compared to years past, and coverage needs to be improved in buildings

From a cost perspective, it's cheaper to put a system in before the walls go in than afterward.

When it comes to regulation, we have

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little hindrance for the wireless component. Most regulatory issues that affect in-building systems involve building codes and placing cable in conduit.

On the technology side, we're looking to improve our solutions to speed the installation and reduce the cost. We work in a commercial real estate world, and LGC uses standard cabling with single-mode or multi-mode fiber, Cat 5 cabling such as your computer uses, and CATV RG-6 cabling such as cable TV uses. We're the only ones to do that. From a cost perspective, that's a huge advantage because the cost of cabling is relatively inexpensive and easy to install, and it is easy to find people who do installation.

As for the size of the market, ABI Research studied the in-building market and updated its study in the last year. They broke the market out in a number of ways, geographically and between passive, all-coax systems and active systems like what we provide, and by building size. They pegged the total value worldwide in 2006 at \$1.2 billion, growing to \$1.5 billion in 2007 and \$1.9 billion in 2008, between passive, all-coax systems and active systems like what we provide.

The trend toward active systems throughout the world continues, with the exception of Asia-Pacific where they believe passive system growth is flat, out to 2011. The growth is definitely in active systems. Passive systems introduce loss in the system because of the coax. We've seen that ourselves in our own business where passive systems might have been adequate for a GSM network, but when you start to move into UMTS EV-DO and HSPDA, passive tends not to be acceptable because of performance issues.

WiMAX is going to have to have in-building as part of the network roll-out. When you look at the primary uses of WiMAX, you're talking lots of data, including video applications. When you look at that usage, it's more portable or nomadic. The devices are portable but the users are stationary, in conference rooms and airports, those kinds of placing, involving lots of indoor use.

The second piece is the law of physics.

As you get higher in frequency, it's harder to penetrate buildings, such as at 2.5 GHz. You penetrate the outer wall and to 10 to 20 feet, after which the signal is no longer usable.

Carriers will be spending billions in capex to roll out. If users are indoors because most of the applications are, for data and video, if you don't get good signal strength indoors, that's going to be a problem.

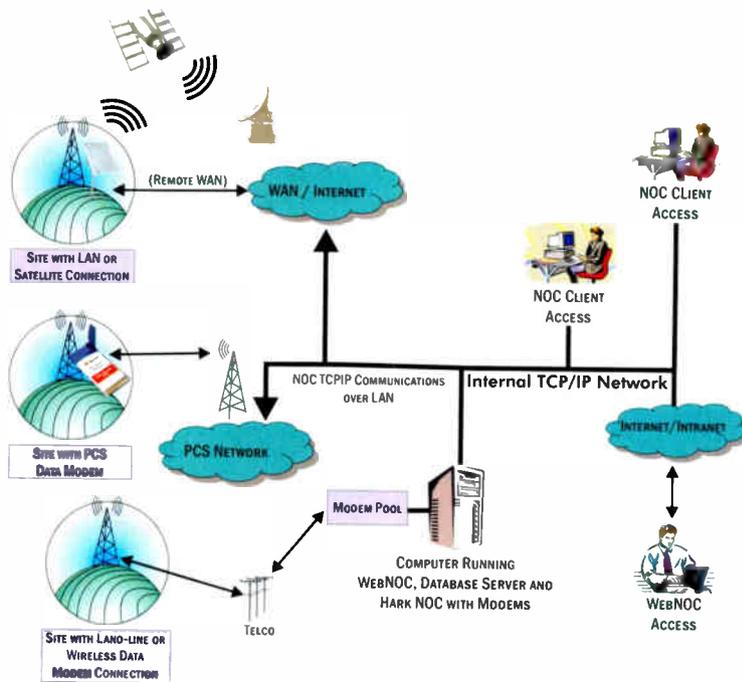
In multi-tenant buildings, histori-

cally there wasn't much interest from a carrier perspective. Tenant X, Y and Z might have Verizon and the others might have AT&T, so it's tough to get a critical mass of users for the capex of putting in an in-building solution. Plus tenants are transient.

We're seeing more interest from building construction companies and owners. More and different segments are looking at the needs for in-building wireless. agi

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Think Small

Some tower owners have begun charging for antennas by weight.

BY LARRY HEISLER

Structural limitations, crowded space and weight limits combine to motivate equipment manufacturers to miniaturize

and strip as much weight from antennas and tower-mounted electronics as possible. Larry Heisler, director of marketing and product management at RFS North America, offers his view of antenna, cable and tower-mounted amplifier technology for the future, as told to Don Bishop.



There's a lot more need for space on towers moving forward. Obviously, as the Advance Wireless Services build-out continues and accelerates in 2008, there will be more opportunity for people who own towers, and as we move into the 700 MHz world when the auction takes place in January, that will open up even more

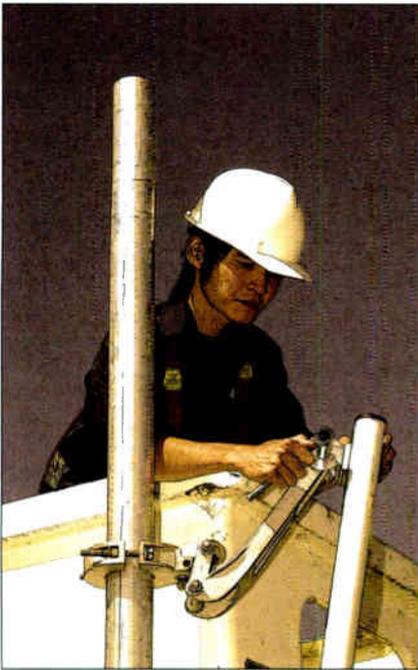
opportunities for collocations.

Collocations seem to be the theme of what people are looking at. We're trying to do as much as we can to support that with multi-band products whether tower-mounted amplifiers (TMAs), antennas, or integrated products combining antennas and TMAs.

A cluster-mount product offers low visual impact if it goes on a tower or a billboard.

Collocations: more common

Although specific numbers for the increase in the number of sites in the coming year are difficult to come by, we know collocations will become more



common. I wouldn't want to throw a percentage out there because everyone has their own view. More and more people want to share a site, and less and less often do they want to give approval for a new site.

There's no slowdown for collocation, and there are fewer new towers being built. That's my impression because from a zoning perspective, it is tougher to get the zoning approval.

Low visual impact; lighter weight

Tower owners should know that products are becoming available that have more capacity and no additional visual impact and no additional wind loading. That's a concern for tower owners.

We are putting out "light" products. For example, we have aluminum coax that's about 30 percent lighter than the traditional copper coax, to allow for more collocation and reuse. The focus is on less visual impact and lighter weight.

Sources for new business include WiMAX deployment. Sprint has been vocal about it, and it's driving new business. Mobile TV to a lesser extent will drive infrastructure changes. Those are the two reasons we see growth in the near term.

Shared feeders

Carriers and tower owners should

be looking for opportunities to share feeders, whether through the use of diplexers or triplexers or other multiplexing to allow multiple frequencies to share the same cable. We're working on that technology now, and we're looking for more opportunities.

Fiber to the top

Another area of more interest in-

volves a remote system you run over fiber so you don't necessarily have big cables going to the top of the tower, but instead fiber goes to the top. That's probably the next big thing for us to be looking at. We have no definite time frame on it, but in the 2008-2009 time-frame, more offerings of that type will be coming out. **agl**

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continued from page 21

Surge Protection



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The P8AX series coaxial surge protectors from **Citel Protection** have been designed to protect antennas, microwaves, broadband applications, two-way radios, cellular equipment and GPS equipment against lightning surges and electrical transients. The P8AX protectors employ gas tubes and are available with three grounding options, M6 ground screw, bulkhead or optional mounting bracket. Applications include tower-mounted amplifiers, antenna systems, tower top electronics, transmitters and receivers.

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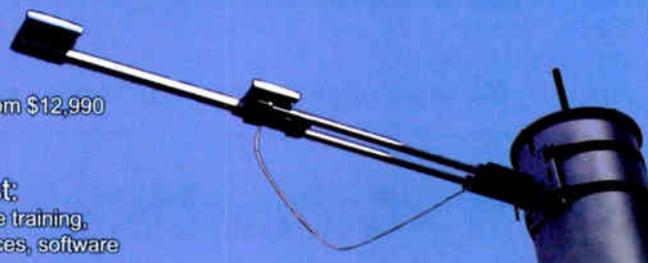
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<p>National Grid Wireless Holdings, Inc. <i>has acquired</i> Beacon Broadcasting Corporation 11 Towers <i>MVP represented National Grid</i></p>	<p>BFT Tower Co., I&II <i>has sold</i> 10 Towers <i>to</i> Global Tower Partners <i>MVP represented BFT</i></p>	<p>Tower Site Solution, LLC <i>has sold six towers in South Carolina and one in Georgia</i> <i>to</i> Optasite, Inc. <i>MVP represented Tower Site Solution</i></p>	<p>CitySwitch LLC <i>has sold certain towers in Georgia and Indiana</i> <i>to</i> SBA Towers II LLC <i>MVP represented CitySwitch</i></p>
<p>Big Bend Towers, LLC <i>has conveyed certain assets in Florida and Georgia</i> <i>to</i> SBA Towers II LLC <i>MVP represented Big Bend</i></p>	<p>Tribune Broadcasting <i>has sold 11 towers in Indiana</i> <i>to</i> Horvath Communications <i>MVP represented Tribune</i></p>	<p>Prime Sites, LLC <i>has sold a tower in Wisconsin</i> <i>to</i> SBA Towers II LLC <i>MVP represented Prime Sites</i></p>	<p>Independence Media Holdings LLC <i>has conveyed certain towers in Illinois</i> <i>to</i> Optasite, Inc. <i>MVP represented Independence Media</i></p>

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