

# A SIMPLE ANSWER TO ANIMAL INTRUSION ON POWER SITES

By Margaret Bennett, Kinectrics Inc.

Raccoons, squirrels and the like may be seen as cute by some, but quickly become less lovable when they get into power stations, interfere with equipment and cause disruptive, sometimes costly outages, not to mention their own unpleasant demise.

One back-to-basics solution to the serious problem of animal intrusion currently making a name on the market is Kinectrics' PowerKage non-electric fence, a passive defense system for transformers and other electrical systems that works 24/7 to protect clients' equipment. The PowerKage non-electric fence has quickly become established among animal barrier products available to the industry, following the system's successful installation at a



number of North American transmission stations. Kinectrics has just recently been awarded another contract to install the PowerKage at 3 large utility substations in Southern Ontario.

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### NON-ELECTRIC TECHNOLOGY

A key feature of PowerKage is its simplified design, which does not rely on electric power to operate. This offers numerous safety benefits for station personnel, the public, and even any potential 4-footed intruders that are effectively prevented from connecting with power equipment.

"Kinectrics developed PowerKage as a non-electric technology because, during an experimental program to test barriers conducted over several years, it proved to be the most effective option in preventing the ground passage of small animals — even when tested under worst case conditions," says Paul Patrick, Ph. D., of the PowerKage system design team.

### DESIGN SIMPLICITY

Kinectrics' PowerKage non-electric fence is modular in design and easy to install, disassemble or reconfigure. The modular design of the fence system allows authorized personnel to easily remove or take down sections where required to allow access to work locations if needed. The basic fence components consist of 6-foot units, 26" units, inside corner units and outside corner units. Gates, for both vehicle and personnel access, are easily accessed by one person in less than a minute, and are identified by signage to distinguish their location on the fence line.

Personnel gates are constructed in six-foot panel sections mounted with robust heavy-duty double hinges that provide a four-foot opening (180-degree swing) for entry with both left and right hinge options. Personnel gates are also supplied with a hinged, fold-down panel at the bottom of the gate to allow the upper gate portion to swing freely above accumulated snow

drifts.

The vehicle gate is designed to provide an access opening of 12 feet within an 18-foot unit. Vehicle gates are built with robust heavy duty double hinges that allow operators to fold both gates up to 180 degrees. Gates come with bolt-action locks that can be padlocked if necessary.

The PowerKage non-electric fence (and associated deterrent technologies) does not require special technical work instructions, work protection practices, monitoring, or indicators for maintenance and general operation. The PowerKage non-electric fence is grounded to the transformer station grounding grid to provide continuous ground fault protection when gates are opened, or when panels and sections of the fence have been removed. PowerKage poses no hazard to grounds maintenance crews or inadvertent intruders. Components are engineered for durability and minimal maintenance.

The PowerKage system offers unique flexibility — fence layouts can be focused to contain specific problem areas (i.e. using one or more, smaller fence enclosures within a utility's premises). If required, PowerKage can also be combined with security fencing, an option not typically available with electric fencing.

Specific PowerKage system details are designed to meet to the requirements of individual station sites. For example, the PowerKage system has additional features that are designed to

prevent animals from gaining access by digging, or using branches, lines and other objects to gain entry to power sites.

#### OPERABILITY

The PowerKage system layout is designed to minimize interference with the operation of substation equipment. The fence is either kept very close to fuses and switches that need to be operated such that they can be accessed from outside the fence, or far enough away that they will not interfere with operator's switch pole. One person can remove the necessary bolts or pins to remove any fence panel as necessary. Any grounding wires installed are connected to the structure's feet and not the panels.

#### MINIMAL MAINTENANCE

Kinetrics PowerKage non-electric animal control fence is designed to be maintenance free. Barring exceptional circumstances, no spare parts should be required for the system's 25-year life cycle. There are no controllers to be damaged by lightning or weather. The only tools required for a PowerKage installation are a level, rake, shovel, and wrench set.

Preventing animal intrusion is important for utilities. As Christine McLeod, an Edison regional manager in the U.S. has observed, "Outages caused by animals may not always be major, but when they happen at regular intervals they drive people crazy."



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