

2013 PLS-CADD Advanced Training and User Group

Welcome

And

What's New with PLS!

by

Otto J. Lynch

Power Line Systems, Inc.

Welcome

- Largest User Group EVER!
 - 312 People Registered
 - 156 People from 17 Countries
 - 161 People from 79 Consultants
 - 114 People from 64 Utilities
 - 18 People from 4 Transmission Companies
 - 20 People from 9 Manufacturers

Welcome

- Safety Briefing
- Restrooms
- Internet Access
- Breaks
- Lunches
- Receptions

Network Mapping
Aerial Laser Survey

valmont 
NEWMARK

What's Old at PLS

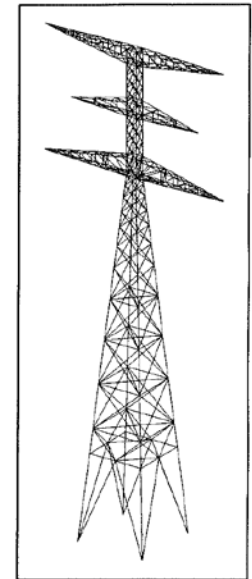
- TOWER was first developed as a mainframe program in 1977
- The first commercial version on PC's came about in 1984.

TOWER - Analysis and Design of Steel Latticed Towers

TOWER (Version 90) is the most recent of a series of programs for the analysis and design of steel latticed transmission or communication towers (towers made of steel angle members bolted together). It has been used over the last fifteen years by many electric utilities, consulting firms and fabricators worldwide. While it originated on mainframe computers, it is now only available on microcomputers (MS-DOS).

The analysis performed by TOWER is linear, i.e. it is best suited for self-supporting towers for which secondary stresses are not considered. Towers designed with tension-only members can be handled. Non-linear structures (such as guyed towers, systems of flexible structures interconnected by cables, etc.) can be analyzed by the companion program SAPS (Structural Analysis of Power and communication Systems). The capabilities of TOWER as well as its analysis and design assumptions are fully described in the User's Manual. Towers with up to 1400 members and 400 joints can be handled. Unit systems can be consistent, metric (kN), metric (kgf), or Imperial.

TOWER is a complete package of integrated programs: 1) a menu-driven input preprocessor, 2) a graphics module to check tower geometry and deformations under loads, and 3) an analysis and design processor.



Summary of features

- Specialized program for analysis and design of latticed structures
- Ease of input through interactive menus
- Automatic generation of joints and members by symmetries and interpolations
- Automatic bandwidth minimization for ability to solve large problems efficiently
- Design checks for 2nd edition of ASCE Manual 52
- Automatic calculation of tower dead and wind loads
- Minimization of problems caused by unstable joints and mechanisms
- Design summaries printed for each group of member
- Powerful graphics capability
- Detailed User's Manual with example

There is a demonstration version of the program (which can only be used for small towers).

POWER LINE
SYSTEMS · INC ·

918 University Bay Drive
Madison, Wisconsin 53705, U.S.A.
Phone: (608) 238-2171 Fax (608) 238-9241

What's Old at PLS

- PLS-POLE's origin dates from the mid 1980's.
 - WPOLE
 - WFRAME
 - SPOLE
 - SFRAME
 - CPOLE
 - CFRAME

SPOLE - Analysis and Design of Single Shaft Steel Pole Structures

SPOLE is a microcomputer-based (MS-DOS) program for the analysis and design of single shaft steel pole structures. It is being used by many electric utilities, consulting firms and fabricators worldwide.

The analysis performed by SPOLE is an exact nonlinear analysis especially developed for cantilevered poles. Non-linear multipole or guyed structures (such as H-frames, guyed poles, systems of flexible structures interconnected by cables, etc.) can be analyzed by the companion program SAPS (Structural Analysis of Power and communication Systems) or SFRAME (Analysis and Design of Tubular Steel Frames). The capabilities of SPOLE as well as its analysis and design assumptions are fully described in the User's Manual.

SPOLE is a complete package of integrated programs: a menu-driven input preprocessor and an analysis and design processor.

Summary of features

- Specialized program for analysis and design of single pole steel structures
- Ease of input through interactive menus
- Automatic generation of model (with or without slip joints)
- Circular, 6-, 8-, 12-, or 16-sided cross sections
- Design checks for latest ASCE requirements
- Automatic calculation of pole dead and wind loads
- Capability to specify ground line rotation
- Convenient design summaries
- Detailed User's Manual with example
- U.S. or metric version

POWER LINE
SYSTEMS · INC ·

918 University Bay Drive
Madison, Wisconsin 53705, U.S.A.
Phone: (608) 238-2171 Fax (608) 238-9241

What's Old at PLS

- SAPS dates from the mid 1980's.
- Old brochures provided by Doug Harms via George Watson of CenterPoint Energy, formerly Reliant Energy, formerly Houston Industries Inc., formerly Houston Lighting & Power Company when they originally purchased PLS-CADD.

SAPS - Structural Analysis of Power and communication Systems

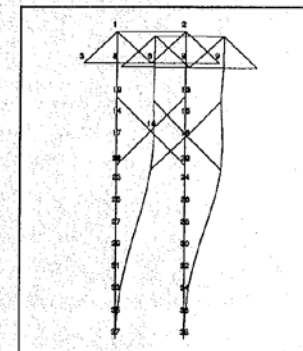
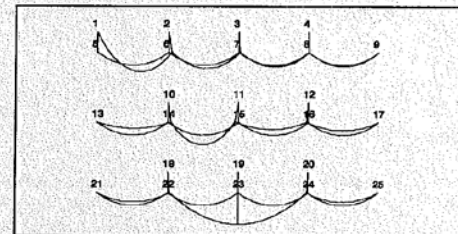
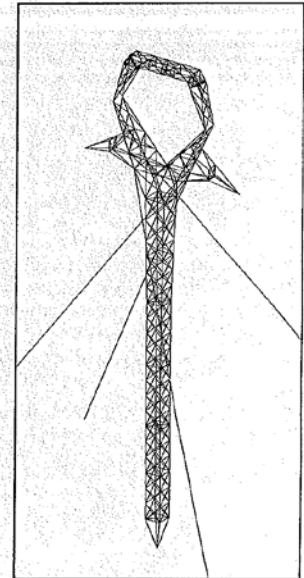
SAPS is a general nonlinear structural analysis program. However, its primary intended use is in the field of transmission and communication systems. Such systems often contain cables in the form of conductors, ground wires, guys, suspension strings, etc. They can also include flexible bending elements which deflect significantly under design loads. In transmission and communication structure applications, SAPS has been found vastly superior to traditional nonlinear finite element programs both in performance and simplicity of use.

SAPS has been used over the last ten years by many electric utilities, consulting firms and fabricators worldwide. While it originated on mainframe computers, it is now only available on microcomputers (MS-DOS). Structures with up to 300 joints, 1400 truss elements, 100 cable elements, 150 beam elements, and 100 fuse elements can be handled. This is sufficient to analyze most transmission and communication structures as described in the user's manual.

SAPS is a complete package of integrated programs: 1) a menu-driven input preprocessor, 2) a graphics module to check system geometry, and 3) an analysis processor.

Typical applications

- Guyed transmission structures (delta, V-, Y-, chainette, etc.)
- Flexible line segment (several structures interconnected by cables)
- Flexible single or multiple pole structures (steel poles, H-frames, etc.)
- Guyed microwave or TV towers
- Antenna arrays
- Suspended structures (roofs, bridges, etc.)
- Unbalanced tension calculations (various wind, ice, temperature conditions)



POWER LINE
SYSTEMS · INC.

918 University Bay Drive
Madison, Wisconsin 53705, U.S.A.
Phone: (608) 238-2171 Fax (608) 238-9241

What's Old at PLS

- Prior to 1992, DOS versions of CALD, Align, Edit, and PPSHEET were developed
- PLS-CADD, as a MS-Windows program was born in 1992.
- By the end of 1994 the user's list included already 15 countries and 61 users.

What's Old at PLS

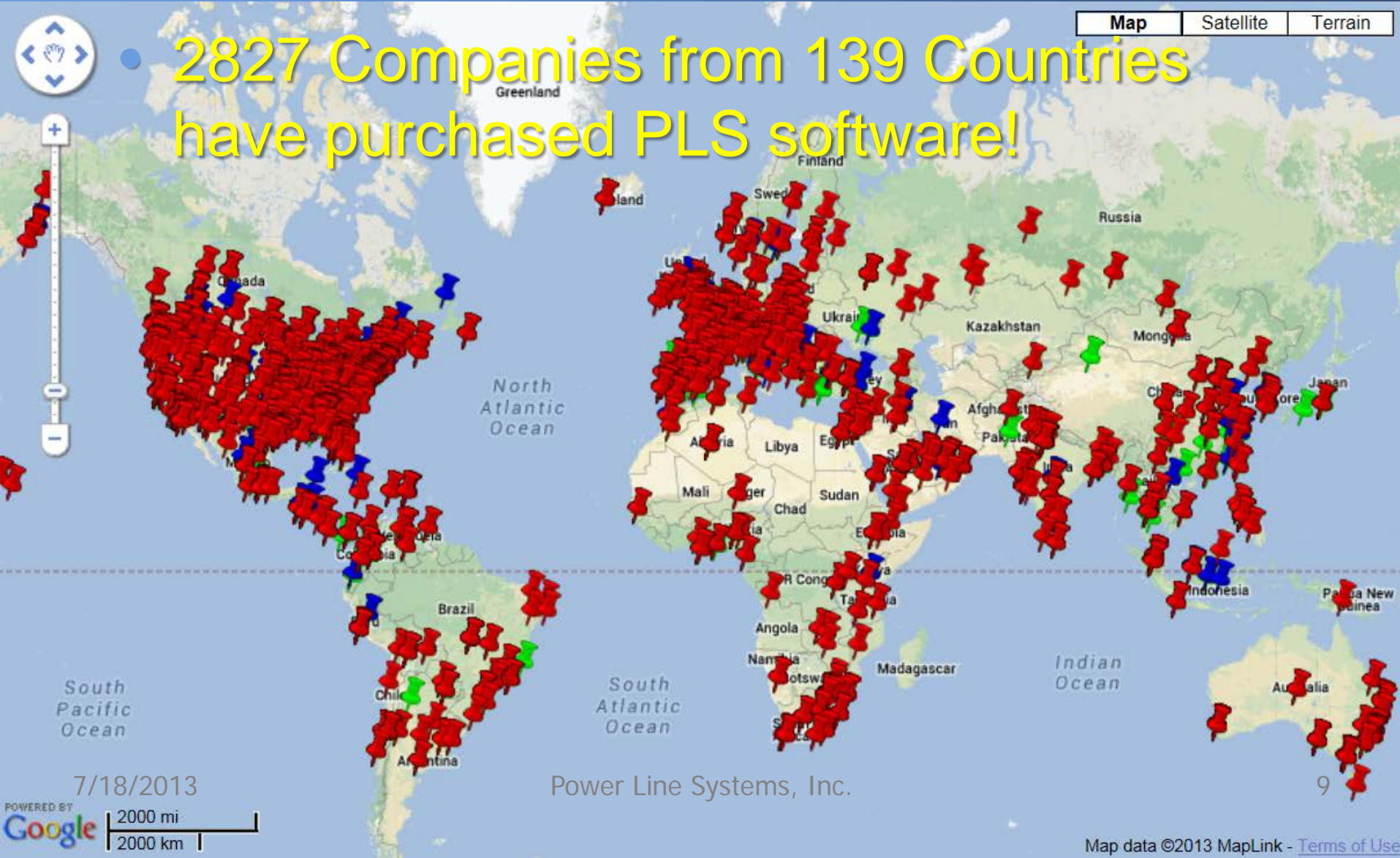
- Required Hardware Configuration in 1992!

- PC 386 SX, 386, 486, PS/2
- Math coprocessor
- Hard disk 20 MBytes or more

- VGA or EGA screen
- MicroSoft compatible mouse
- HPGL compatible plotter

What's New at PLS

- 2827 Companies from 139 Countries have purchased PLS software!



Power Line Systems, Inc.

What's New at PLS

- Brand New Training Facility



- The next three days will cover everything else that's new!

PLS Team – Alain Peyrot

- Now...



PLS Team – Alain Peyrot

- and then!



PLS Team – Eric Peyrot



7/18/2013

Power Line Systems, Inc.

13

PLS Team – Eric Peyrot

- Now.



PLS Team – Eric Peyrot

- and then!



PLS Team – Steven Weber



7/18/2013

Power Line Systems, Inc.

16

PLS Team – Erik Jacobsen



7/18/2013

Power Line Systems, Inc.

17

PLS Team – Nathan Brazy



7/18/2013

Power Line Systems, Inc.

18

PLS Team – Marc Jacobson



7/18/2013

Power Line Systems, Inc.

19

PLS Team – Brandon Grillon



7/18/2013

Power Line Systems, Inc.

20

PLS Team – Jesse Kohler



7/18/2013

Power Line Systems, Inc.

21

Agenda

- Hardcopies Available
- Electronic Copy at
 - http://www.powline.com/usrgroup/madison13/ATUG-2013_Agenda.pdf
- 20 Presenters Covering Various Topics
- Overlap Intended
- Questions Encouraged
- New Features Discussion Thursday Afternoon During Roundtable

Power Line Systems

IT'S ALL ABOUT YOUR POWER LINES

Advanced Sag & Tension

IEC

FAC 008/009

NESC

Materials Management

LiDAR Modeling

PLS-CADD[®]

CSA

Structural Analysis

Distribution

Pole Analysis

CENELEC

Transmission

NERC Ratings

Project Estimating

Line
Optimization

Questions?

FAC 003

ASCE

Joint Use

PLS-POLE

Vegetation Management

POWER LINE[®]

1000+ Users in 100+ Countries

Storm Hardening

S Y S T E M S · I N C ·

IEEE

Line Ratings

Madison, Wisconsin 53705, USA

TOWER

Drafting

Phone: 608-238-2171 Fax: 608-238-9241

info@powline.com

www.powline.com

IT'S THE SOLUTION