

Siemens Power Technologies International

Managing transmission planning models

PSS[®]MOD – Model on Demand

At a glance

The PSS[®]MOD (Model on Demand) product of Siemens Power Technologies International (Siemens PTI) revolutionizes traditional approaches to managing network models used in transmission planning studies by providing a web-based application with an extensive set of features supported by a centralized data repository. PSS[®]MOD is currently used by large and small planning departments to coordinate production and publication of large, aggregated base cases as well as support for interconnection and reliability cases. PSS[®]MOD coordinates time-bound network model data inputs from multiple users and is able to assemble a complete study case for any point in time. PSS[®]MOD provides consistency and transparency for network models.

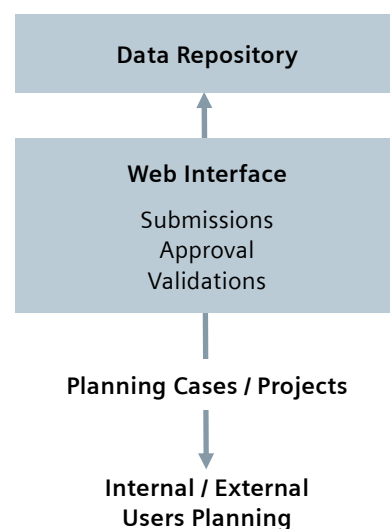
The challenge

Each year, utilities and coordinating bodies generate annual and seasonal power flow and stability cases for representative benchmarks of the system evolution over a planning horizon. For 5-20 years these cases require the incorporation of new planned projects, rating sets based on season or other criteria, profiles load, generation and profiles maintenance schedules. In addition to these benchmark study cases, generation interconnection studies need to be performed, with awareness of the in-service dates for not only the new projects under study but also the dates for every other project in the area of study. The serial nature of these interconnections must be maintained and their dependencies honored.

Such complex model building requirements are very labor intensive, time consuming and prone to errors. Traditional processes use heavily customized scripts (such as IDEV) that rely exclusively on flat files and/or spreadsheets to update the model and assemble cases.

Because of the market impact and sensitivities to the cases, extensive documentation must be kept to track model evolution, changes and data approvals. The user must develop and store extensive descriptions for each study case.

PSS[®]MOD data flow process



Answers for infrastructure and cities.

Now consider the effort required when an interconnection reschedules its service dates. All data relating to the interconnection must be updated and inter-dependencies between this interconnection and all others must be re-evaluated. In theory, all cases that are affected by a schedule change must be recreated and executed.

This process is greatly confounded and becomes much more demanding on the part of the ISO or RTO that is coordinating potentially hundreds of model inputs from just as many utilities and market participants.

The solution

PSS®MOD is a fully developed, feature-rich and field-tested commercial off-the-shelf product that allows the planning coordinator/engineer to:

- Import the base network model directly from a designated PSS®E case (including power flow, short circuit and dynamics data)
- Extract incremental model changes into project files via automated comparison of existing PSS®E cases
- Model and apply equipment commission / de-commission and out-of-service/in-service dates
- Input and manage incremental model changes as structured, time-bound, multi-phase projects
- Generate customized project reports and download to Excel workbook format
- Extract profile and rating data sets from multiple PSS®E cases
- Input and manage profile data sets for load, generation, bus shunts, voltage control and operational transactions
- Input and manage unlimited rating data sets
- Cooperatively manage tie line data with input from different user groups
- Create reusable case definitions (referencing selected projects, profiles and ratings) for assembling complete study cases "on demand"
- Manage solution parameters and automatically pre-solve assembled cases (via embedded PSS®E)
- Enforce formal review and approval process for all input data (projects, profiles, ratings, etc.)
- Identify modeling errors via built-in validation, logging and historical audit trail
- Commit approved and /or completed projects to the base model
- Administer selective user authorization for all functions (including support for user groups and network ownership)

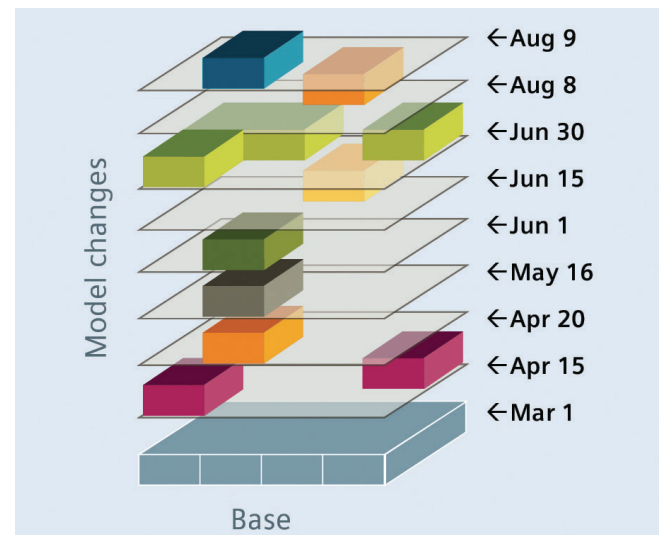
The PSS®MOD solution is comprised of a web-based user interface and application server running on an Oracle database platform. It additionally includes the PSS®MOD File Builder desktop utility for input data preparation. PSS®MOD was designed to support internal and external/remote users via secure internet connection; however, it may also be deployed on a local intranet for in-office access only.

By centralizing network model data and applying meaningful structure to surrounding workflows, PSS®MOD is designed to improve quality and efficiency in

maintaining the network models used for transmission planning studies. One of the most important aspects is how PSS®MOD provides a practical, multi-phase project structure for incremental model changes. Projects are coupled with seasonal (explicit) and annual (scalar) profiles to provide the user with limitless possibilities for designing and assembling custom study cases – all based on officially approved data.

Small and large utilities are able to reap significant gains in modeling efficiency and accuracy from their use of PSS®MOD:

- Single "system of record" for planning model data
- Improved project synchronization, management and bookkeeping, particularly with numerous parallel projects
- Convenient case build/download for any specified target date time, incorporating all of the projects in the queue
- Validation and structured approval process allow screening model changes from external or internal sources prior to accepting changes into the model
- PSS®E data format compatibility promotes efficiency in generating and submitting model updates to a coordinating body
- Organize non-electrical project data and documents via userdefined database extensions



MOD® Time-based modeling

How to get started

For further information or to purchase the PSS®MOD software, please contact Siemens PTI software sales at pti-software-sales.ptd@siemens.com or +1 518 395 5000.

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