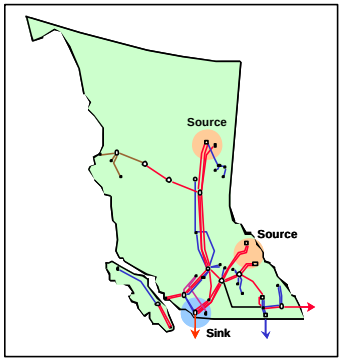
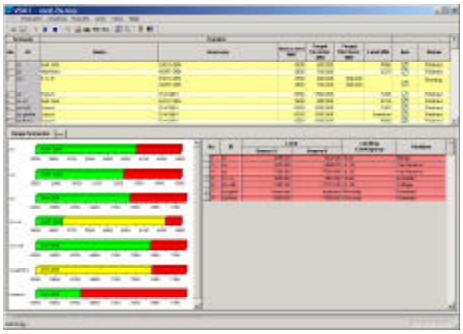
Doubletree Systems Inc.

Transfer Limits Monitoring

A power transfer limit is the maximum power that can be transferred in a power transaction without violating a set of security criteria. This is also referred to as the Total Transfer Capability (TTC), from which the Available Transfer Capability (ATC) can be determined using appropriate rules.



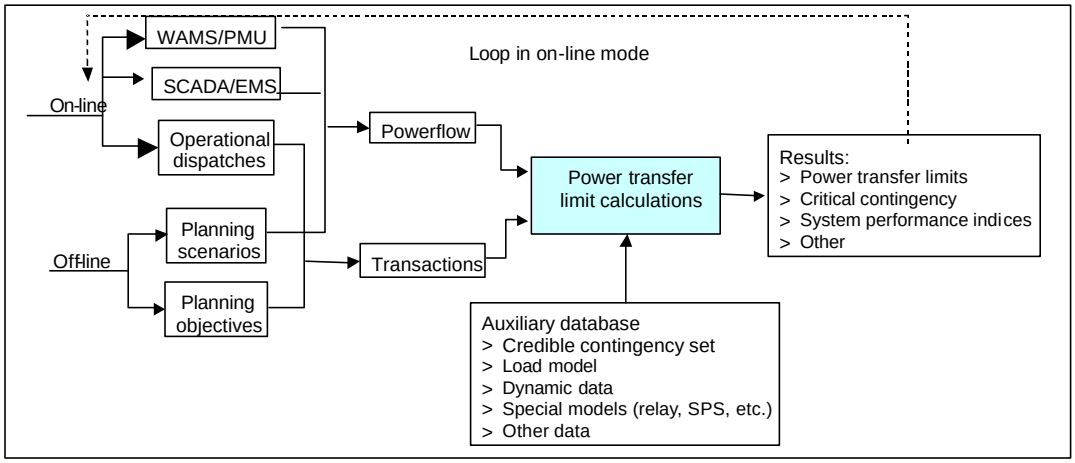
A power transaction specifies a way in which the system load and/or generation changes according to a set of rules. In our software, a power transaction is specified using the source/sink concept, and flexible load/generation scaling and scheduling options are provided to define dispatches for the source/sink.



The power transfer limits determined can be subject to any or all of the following security criteria:

- **Thermal overload**
- **Steady-state voltage violations**
- **Transient voltage violations**
- **Transient frequency violations**
- **Voltage stability margin**
- **Active and reactive power reserve**

The software package can be used online, planning studies, and operational planning studies.



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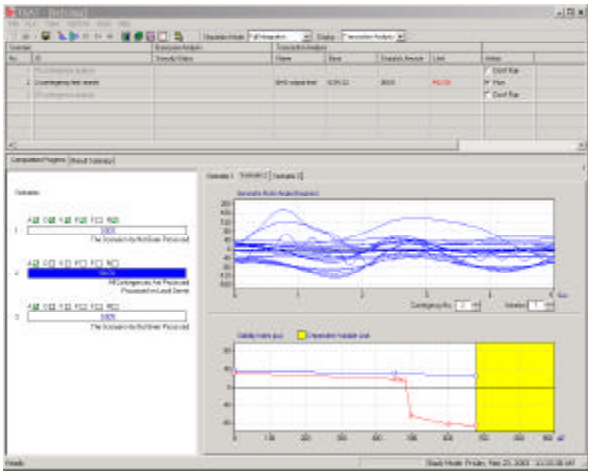
The software package is designed to provide necessary functionalities for the online and planning applications, with the following major computational features:

- **Capability to process multiple computation scenarios, multiple transactions, and multiple contingencies**
- **Application of programs can be customized to allow either off-line interactive operation or on-line integration with an EMS system**



Computations for large systems can be automatically distributed among designated computers to ensure computation performance.

A power transfer limit calculation process starts with a given system condition (power flow) and the transactions to be analyzed. Depending on the security criteria to be considered, additional data (support can be provided as requested) is required:

- **Credible contingency set**
- **Load model**
- **Dynamic data**
- **Special models and data (relay, SPS, generator capabilities, AGC, preventive control measures, negative and zero sequence network data, FACTS and HVDC etc.)**
- **Other data (such as result monitoring, technical solution parameters, etc.)**

Once the calculations are completed, results returned include:

- **Power transfer limits for the given system condition and transactions**
- **Critical contingency**
- **System performance indices**
- **Other detailed results (such as suggested preventive control measures, P-V curves, time-domain simulation results, etc.)**