

Transient *Group*

Company Profile (2020)

Who we are

WHO WE ARE

TransientGroup is involved in process simulation since 2006

SERVICES
& PRODUCTS

Total employees: ~ 6

TRANSIENT

PORTFOLIO

CUSTOMERS

CONTACTS



Services & Products

WHO WE ARE

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TransientGroup offers engineering consulting services in order to support:

The choice and the pre-dimensioning of components and layout of a power plant by means of dynamic simulation of the system in different operative configurations; in particular we are more than 10 years experienced in CSP power plants and we recently started to work for O&G companies (2014).



Services & Products

WHO WE ARE

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TransientGroup offers engineering consulting services in order to support:

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The analysis of the plant processes and its transient phenomena; this is a basic instrument in order to optimize the layout, dimensioning & control of all the components of a power plant.

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Activity focus: Studies of process and dynamic modelling of advanced power plants (*Dimensioning, Dynamics, Economics, Feasibility Study, Definition and Verification of operative procedures, Verification and Optimization of the Control Strategies*)

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Transient

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From the creators of ISAAC Dynamics, Transient is born!

Transient© 1.0 is a New complete instrument designed for studying, modelling and running dynamic simulations of complex systems.



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It allows an easy and effective development of accurate, detailed dynamic models by means of its innovative technical features:

- **modular architecture;**
- **a user-friendly graphical interface;**
- **maximum portability**
- **OS-independent;**



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Main functionalities:

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- **a sound and effective solver, based on Newton-Raphson method, operates in double precision**

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- **a powerful and user-friendly interface**

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- **capability of generating external encrypted applications runnable without the platform (executable files);**

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- **wide components library: CSP, CCS, Combined Cycle (CC) plants, Regulation, Water/Steam, Synthetic Oil, Ideal Gas and Real Gas**

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T Thermodynamic Tables

Water / Steam Ideal Gas **Real Gas** Synthetic Oil Molten Salt

Gas Fraction

Mass fractions:
benzene = 0.45880599536235656
toluene = 0.5411940046376434

Molar fractions:

Physical Parameter

P T H S

Model: Peng-Robinson

Table Results

Variable	Value	Unit
Molecular weight	85.12513	g/mol
-----	Bubble point	-----
Saturation Temperature	255.17444899474094	C
Liquid density	534.5563709522883	kg/m ³
Enthalpy liquid	370.68711675619784	kJ/kg
-----	Dew point	-----
Saturation Temperature	258.5431619888359	C

Licensed to: TransientGroup 94/197 Mb

Use our thermodynamic tables (also REAL GAS)



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Build or modify your model with advanced Editor



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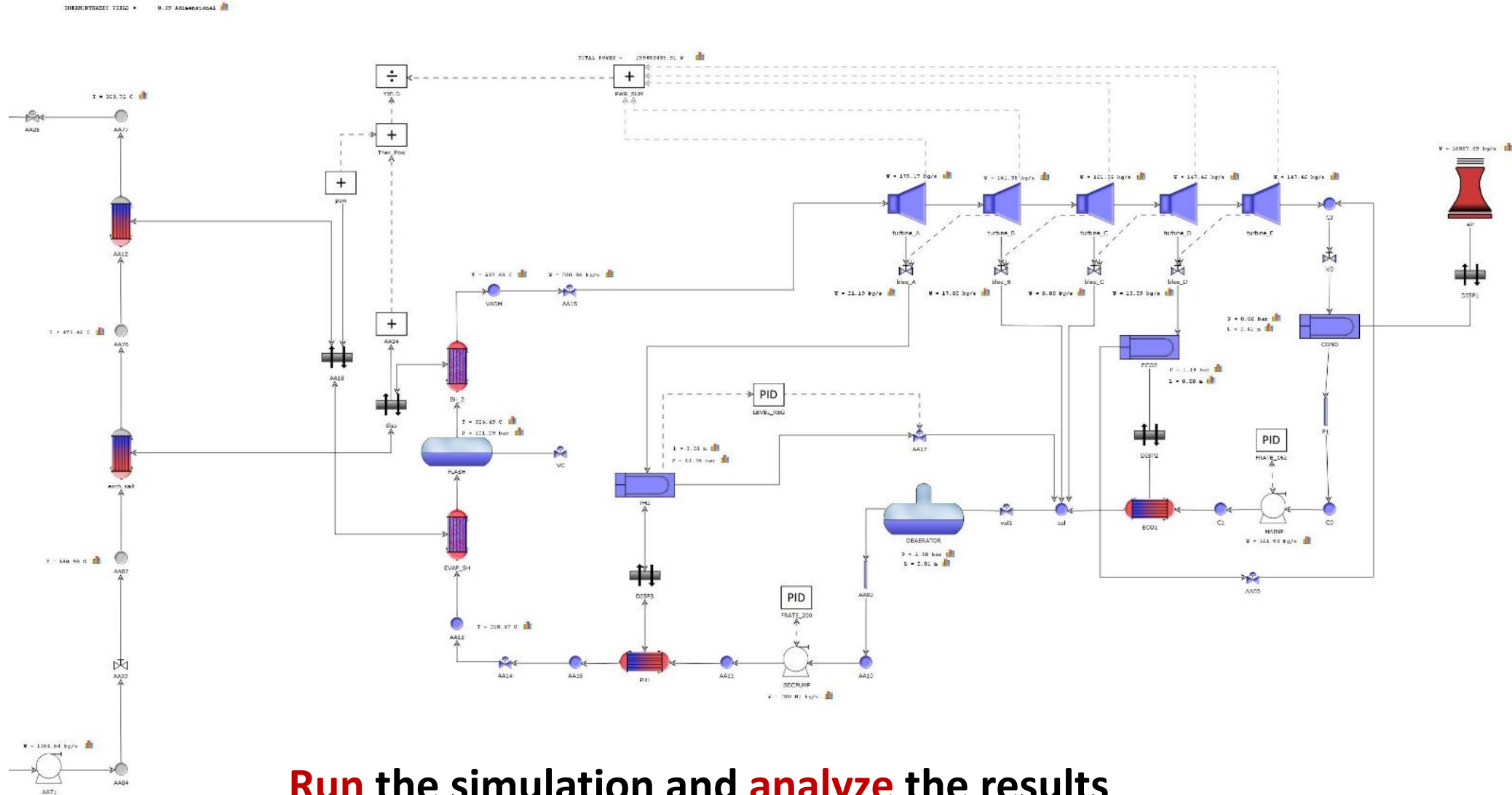
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Run the simulation and analyze the results



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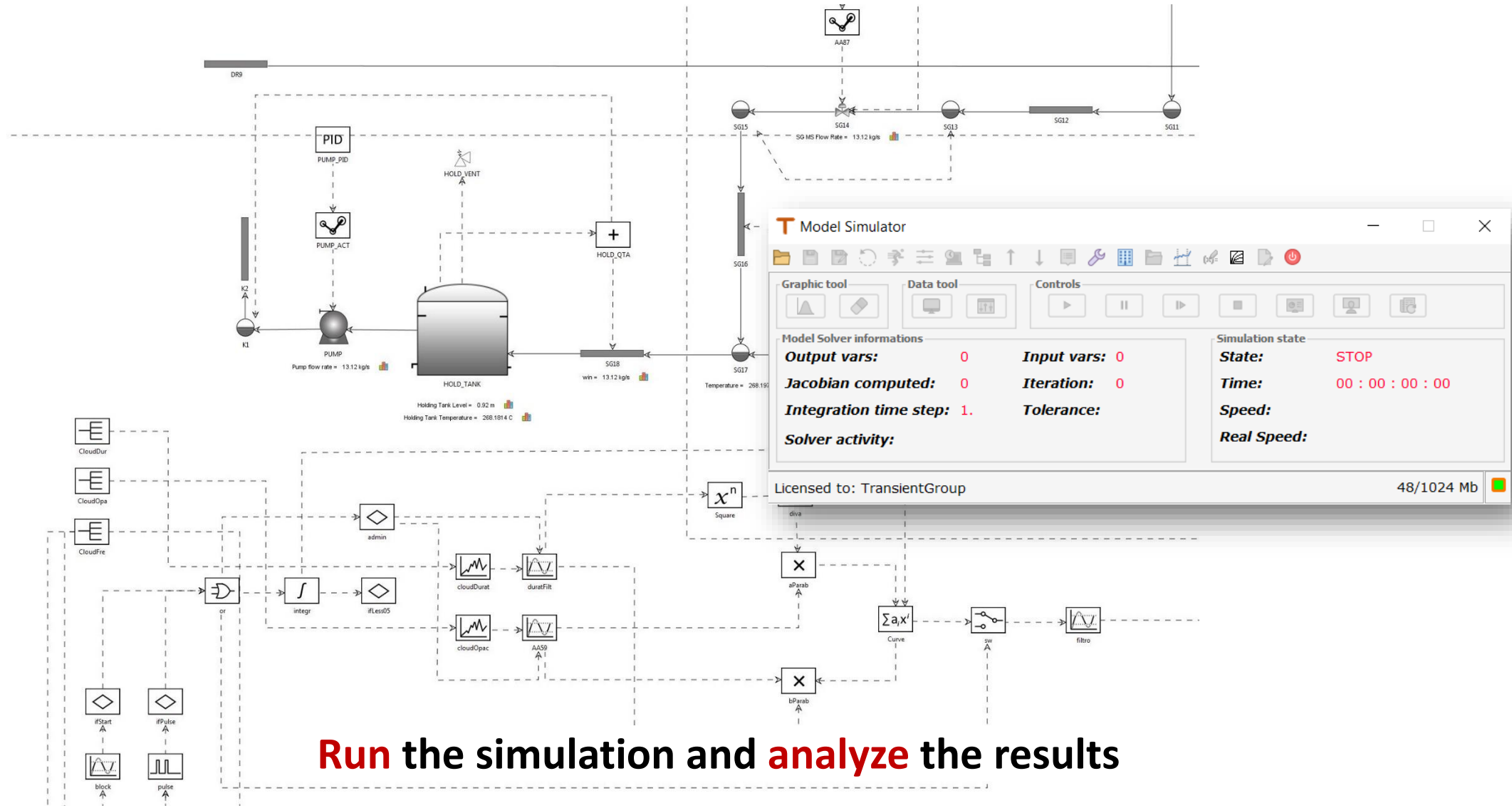
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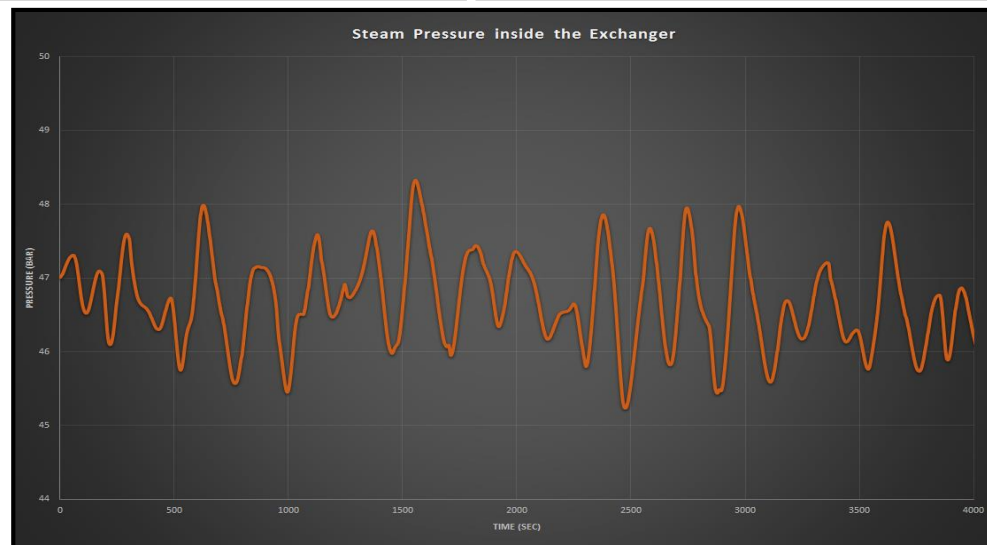
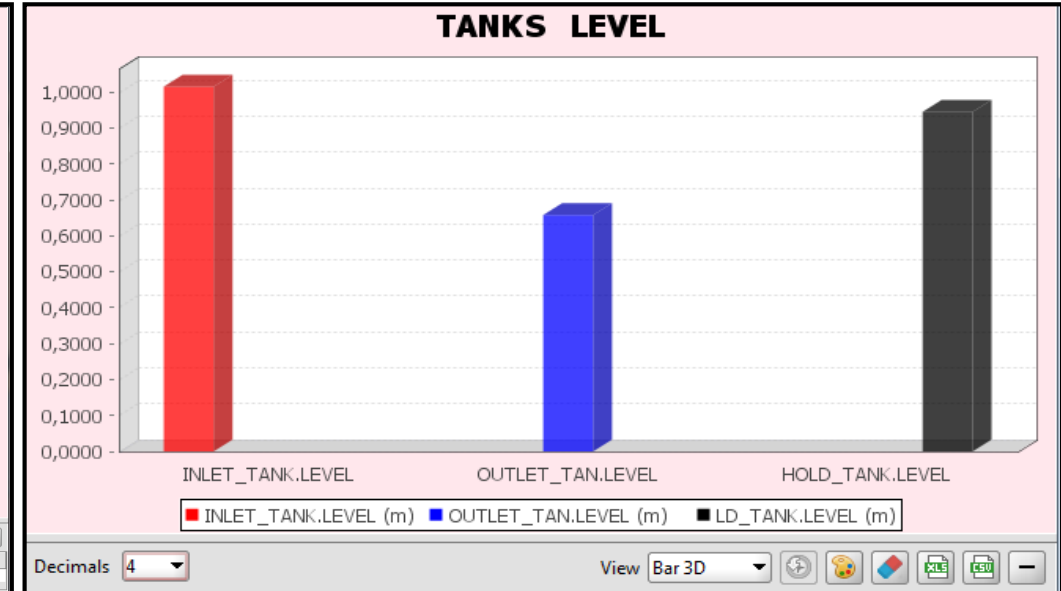
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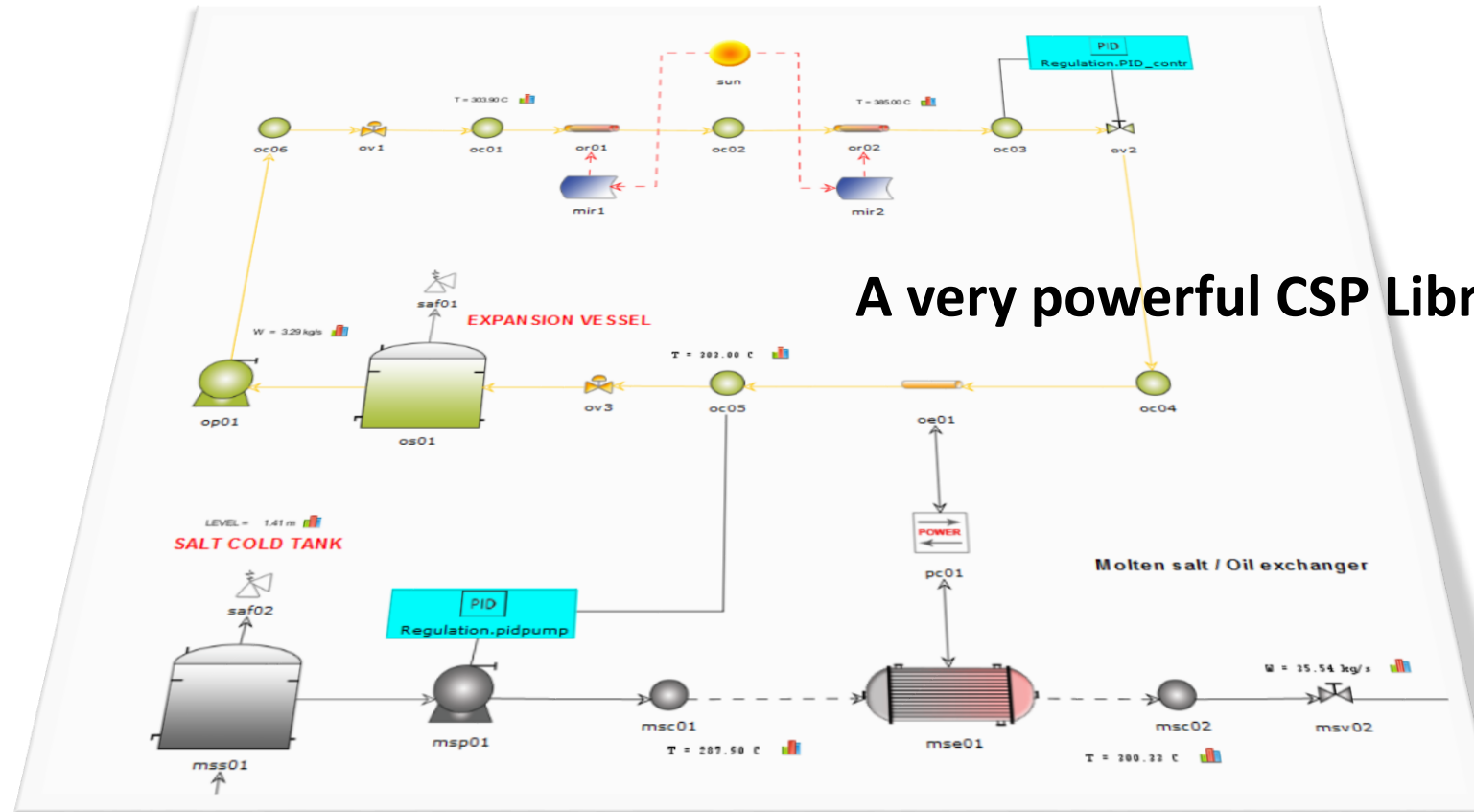
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A very powerful CSP Library



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A very powerful REAL GAS Library

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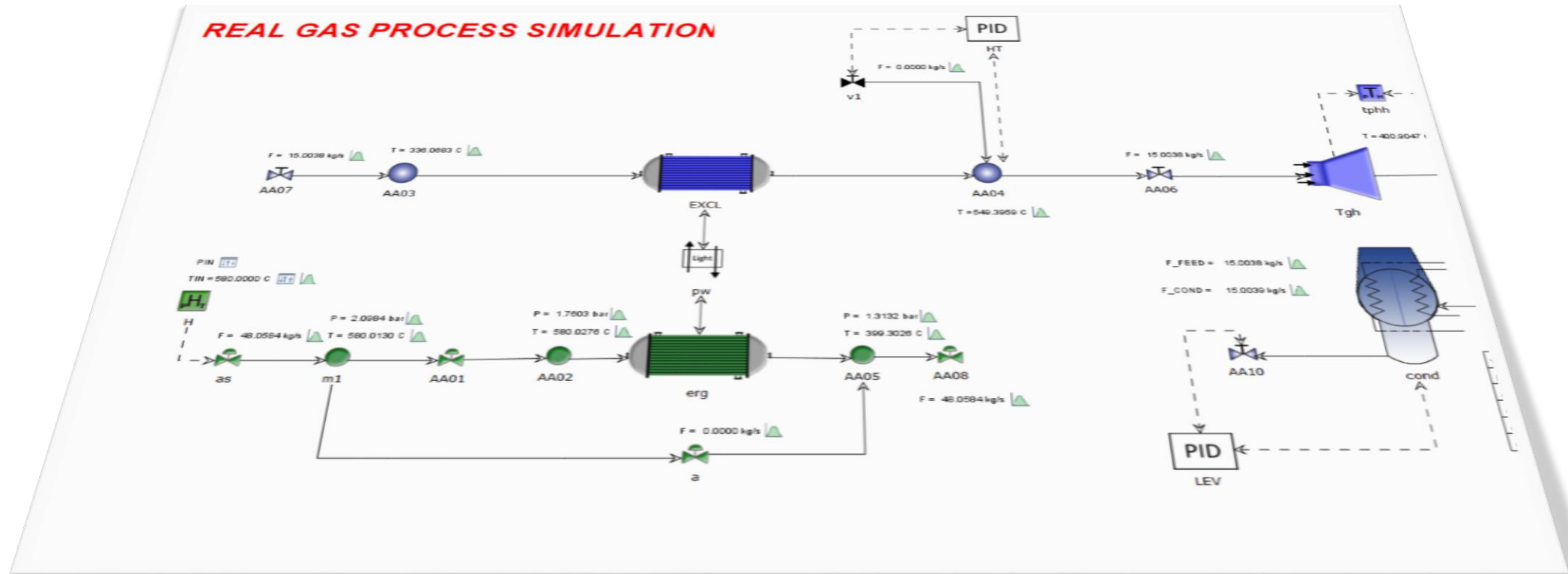
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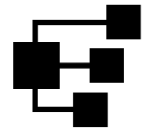
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with



T connect



Connect Transient with every software

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Portfolio (CSP)

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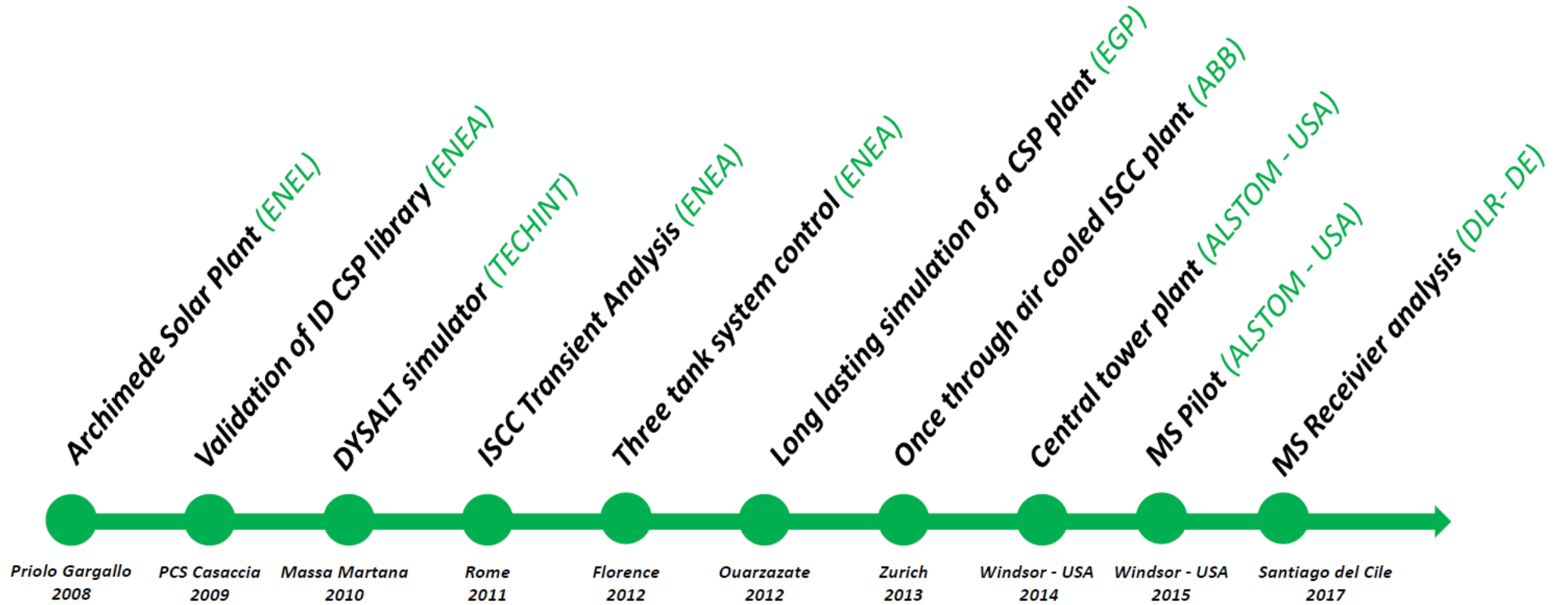
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Portfolio

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Main completed projects

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- **ISCC** (150 MWe) (Solar Paces 2011 , ENEA)

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- **Solar Field Model** with ordinary and extraordinary procedures (10 Mwe - ENEA)

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- **DYSALT** a molten salt plant dynamic simulator (Solar Paces 2010, Techint)

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- **Archimede Solar Plant** (5 Mwe - ENEL Ricerca)

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- **Feasibility Analysis** for a CSP plant (~ 150 MWe - ENEL Green Power)



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Latest works (1/5)

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Transient analysis of a Centrifugal Compressor for Ge Oil & Gas

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In collaboration with GE Oil & Gas, TransientGroup has developed a centrifugal compressor module, faithfully representing the actual machine.

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Starting from the advanced modelling of the compressor and considering the actual compressor maps provided by the builder, the centrifugal compressor module is capable of following preloaded procedures representing load increases/decreases and emergency shutdowns.

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The rest of the plant as well has been represented and in particular: knock-out drums, ISA/UGS valves and pipelines.

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The plants were simulated using our new real gas package.



GE Oil & Gas



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Latest works (2/5)

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Detailed study of steam sealing turbine line for GE Oil & Gas

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TransientGroup has developed a dynamic model of Arenales steam sealing turbine line on ISAAC Dynamics platform.

This model has performed a detailed fluid-thermodynamic study on the whole steam line, with the purpose of delineate the trend of mass flow, pressure, temperature and heat loss.

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The following conditions were also considered:

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- Variable environment conditions
- Thermal insulation efficiency
- Piping deadlines and condensates influences on main branches
- Heat loss due to metallic pipe support

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GE Oil & Gas



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Latest works (3/5)

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*Molten Salt Pilot
Dynamic Model*

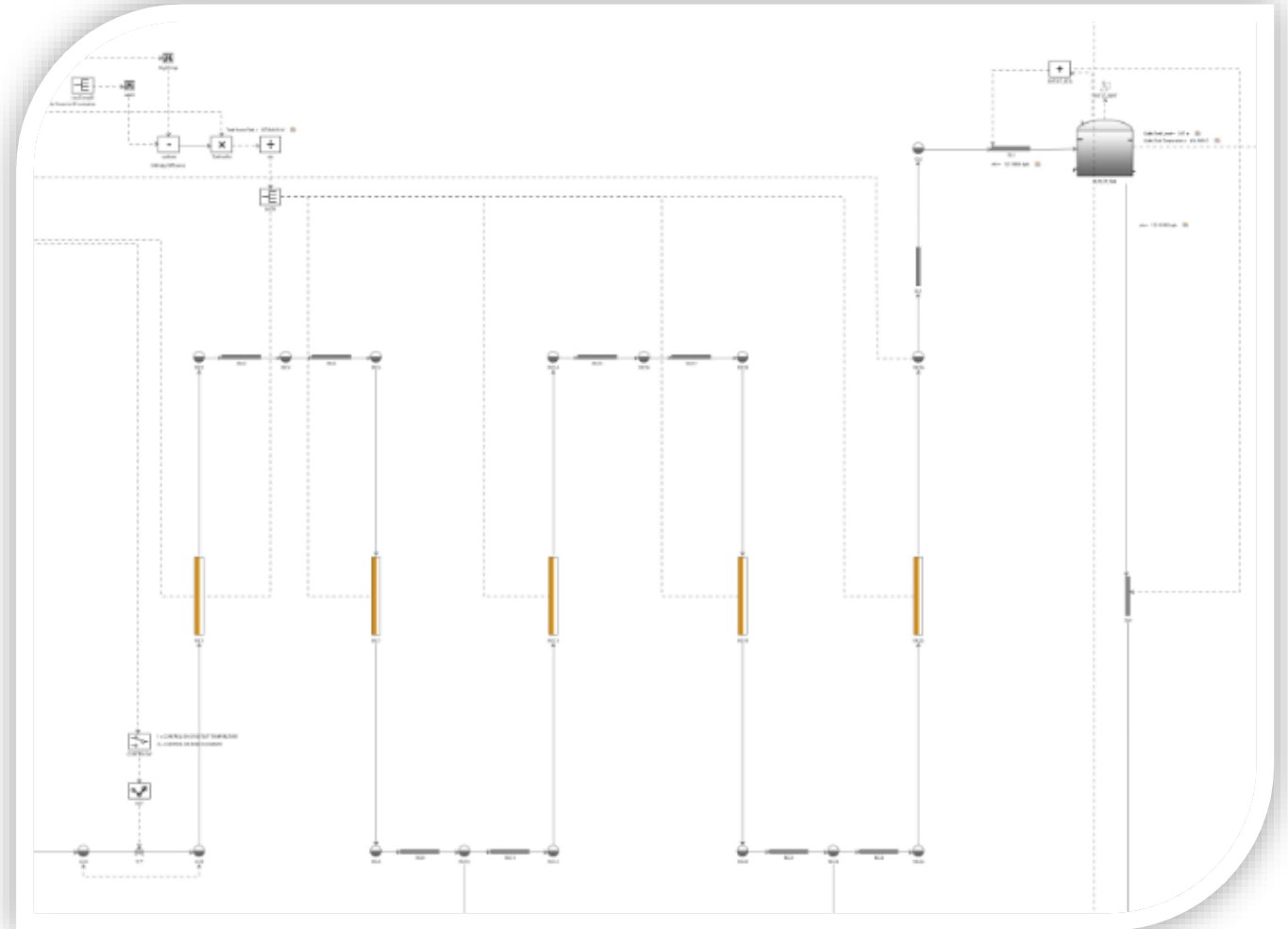
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TransientGroup has developed for Alstom Power Inc. a Molten Salt Central Receiver (**MSCR**) model capable of draining and refilling in order to perform a complete thermal-fluid analysis of the system in different working states.

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Latest works (4/5)

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MSCR model for Alstom Power Inc.

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TransientGroup has developed for Alstom Power Inc. a Molten Salt Central Receiver (**MSCR**) model capable of draining and refilling in order to perform a complete thermal-fluid analysis of the system in different working states.

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Latest works (5/5)

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Study of a rock-wool production plant in order to remove vibrations present in the feed pipe and in the discharge pipe of the cooling jacket of the furnace. TransientGroup performed the following activities

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- Thermo-fluid dynamic analysis of the part of the plant affected by the vibrations
- Development of a dynamic model (by means of ISAAC Dynamics) able to faithfully simulate the system and all its operating phases and to provide the thermo-fluid dynamic profiles and the critical operating conditions
- Identification of optimal operating conditions and changes to the plant layout

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Main Customers

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