

The image shows an aerial view of a power plant. In the foreground, there are two large, white, hyperboloid cooling towers. To the left, a tall, white smokestack with a red and white striped top is visible. The plant's main buildings are in the middle ground, featuring a complex network of pipes and structural steel. The background shows a clear blue sky and some distant hills.

AVEVA

DATASHEET

---

# DYNSIM<sup>®</sup> Dynamic Simulation Power

High Fidelity DYNSIM Dynamic Simulation for the Power Industry

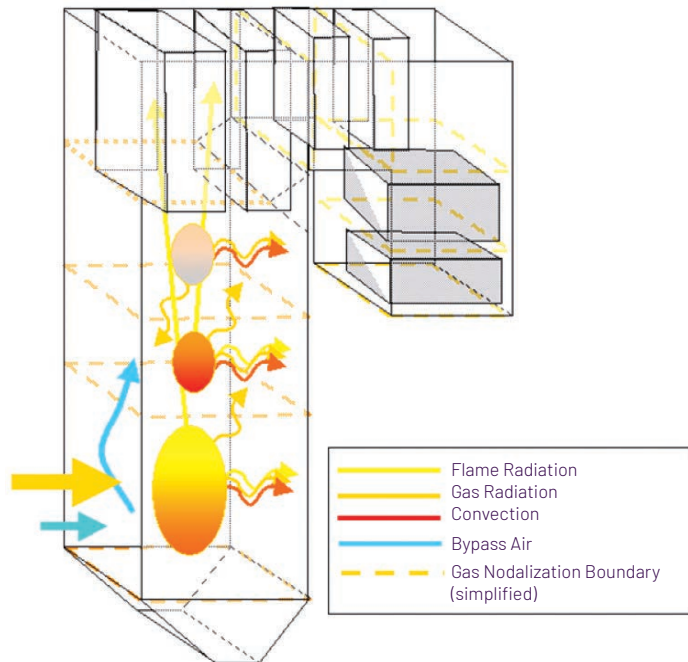
DYNSIM Dynamic Simulation Power is an advanced power plant modeling and simulation environment. This solution is integrated with DYNSIM Dynamic Simulation and used to validate control logic and provide an environment to train operators over a full range of plant operations, including start-up, shutdown, and responses to malfunctions.

## Summary

Advanced, power plant modeling environment. Create flexible, dynamic simulation models that can be combined with a DCS simulation for Engineering validation and control system checkout. Produce an integrated modeling and instructor framework for operator training.

## Business Value

- Improve operator training experience and decrease training times
- Validate control logic before commissioning and shorten start-up time
- Leverage the combined modeling power of DYNMIM Dynamic Simulation, used in over 1200 simulators worldwide



Accurate heat transfer calculation

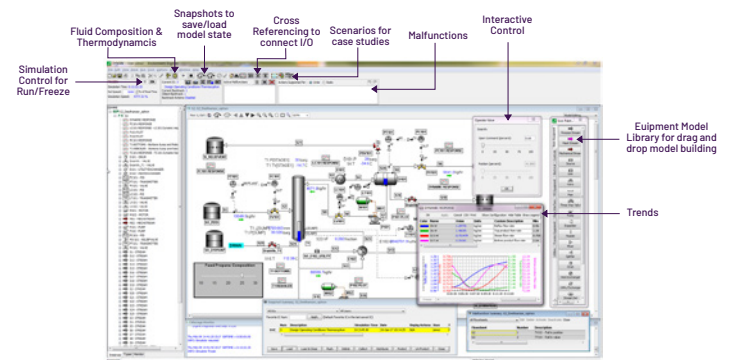
## Introduction

DYNMIM Dynamic Simulation Power is an advanced power plant modeling and simulation environment for use throughout a plant's lifecycle. Create dynamic simulation models that can be combined with a DCS simulation for engineering validation, control system checkout and ultimately produce an integrated modeling and instructor environment to train operators. Simulate any of the following power plant designs:

- Conventional Drum-unit Gas, Oil, Biomass, or Pulverized Coal-fired Power Plants
- Once-through Supercritical Gas, Oil, Biomass, or Pulverized Coal-fired Power Plants
- Circulating Fluidized Bed-unit Gas, Oil, Biomass, or Pulverized Coal-fired Power Plants
- Gas turbine and Combined Cycle Plants

Combine the specialized models of DYNMIM Dynamic Simulation Power with the DYNMIM Dynamic Simulation product to create integrated systems unrivaled in the industry. Simulate any of the following complex plant designs:

- Integrated Gasification Combined Cycle (IGCC)
- Combined LNG Terminal/Power Plant
- Refinery Steam Generation and Distribution



Easy-to-Use DYNMIM Dynamic Simulation Power GUI

# Unit Operations/Models

---

Benefit from a complete set of equipment models to rigorously simulate a variety of power plants:

## Furnaces

- Belt feeders
- Coal Pulverizers
- Gas, coal, and oil fuel
- Radiation gas nodes

## Boiler

- Cyclone separator
- Downcomers
- Steam drums
- Once through risers
- Superheater bundles

## Heat Exchangers

- Condenser
- Evaporative cooler
- 3-region feed water heaters
- 2 & 3 sector regenerative exchangers

## Steam Turbines

- Exhaust hood
- Extraction header
- Governor valve
- Reaction stages
- Steam chest
- Turbines stress
- Metal nodes for turbine soak

## Flow Components

- Fan with the guide vanes
- Header
- Heat exchanger
- Pipe
- Pump
- Tank
- Valve

## Environmental

- Flue gas scrubbers
- Limestone handling
- Selective catalytic reduction (SCR)

## Electrical

- Bus
- Circuit breaker
- Circuit disconnect
- Electrical load
- Exciter
- Generator with V-curves
- Motor
- Power source/sink
- Synchronization key
- Synchronization scope
- Transformer
- Voltage regulator

## Other Models

- Gas turbines
- Torque shaft
- Emissions
- Feedwater chemistry
- Opacity
- Soot blowing
- Bearing vibrations
- Bearing temperatures
- Lube oil systems

## Controls

- Calculation
- Counter
- Custom logic
- Dual input switch
- Function generator
- Latch
- Lead/lag
- Master
- PID controller
- Pulse positioner
- Rate limit
- Summation
- Timer

## System

---

### Instructor Features

- Administrator, engineer, instructor & operator access modes
- Integrated model building graphical user interface
- Built in Control cross-referencing
- Snapshots for initial conditions and backtracks
- Built-in model malfunctions
- Scenarios
- Trainee performance monitoring
- Trends
- Remote Functions / Field Operated Devices

### Connectivity

- AVEVA™ Foxboro Control Simulation
- AVEVA™ Triconex Control Simulation
- AVEVA™ PL Control Emulation (PLC1)
- OPC
- 3rd Party Control Systems
- Microsoft Excel®
- Learning Management Systems (LMS)

Arizona Public Service uses AVEVA technology to keep electricity affordable and reliable.  
Watch the video: [sw.aveva.com/success-stories/arizona-public-service](https://sw.aveva.com/success-stories/arizona-public-service)