

# NOVO PRO®

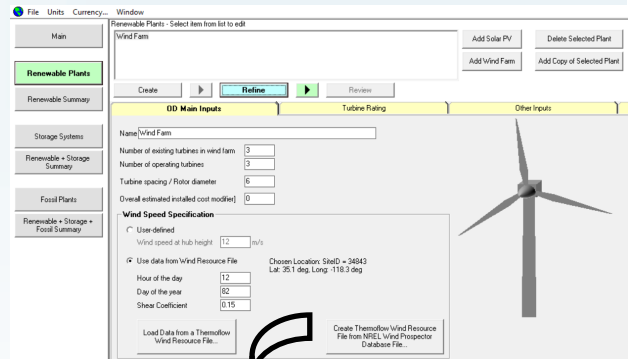
## RENEWABLE ENERGY SYSTEM MODELING AND OPTIMIZATION & (MICRO GRID) SIMULATION

Puzzled by integrating renewables and thermal power systems, storage and/or Hydrogen production? The puzzle has become easier to solve!

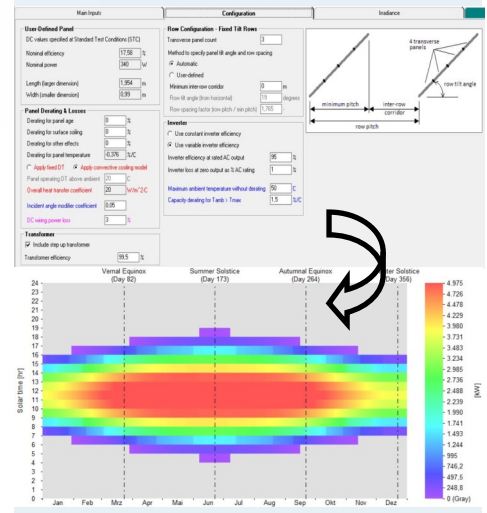
The world’s most comprehensive suite of thermal engineering software for plant design & simulation, optimization, cost estimation, financial analysis and techno-economic optimization now includes **NOVO PRO** to integrate renewables, Hydrogen production and storage systems, and to create all types of Power-to-X systems.

**NOVO PRO** follows a TOP-DOWN METHOD to create renewable systems (PV, Wind, Biomass) and assists the user to create a techno-economically optimized hybrid system in minutes. It identifies grid shortfalls and surplus power and guides the user to create an optimized storage system and/or Hydrogen production plant, or combines any type of thermal power plant(s) to satisfy the grid’s power demand.

**NOVO PRO** is a “renewable system integrator” and simulates the effects of fluctuating renewable energy systems on existing fossil-fired power plants (CO<sub>2</sub> reduction, load scheduling of thermal plant(s), analysis of phase-out concepts, etc.).



### WIND TURBINE & PV-MODULE LIBRARY



## CUSTOMIZED THERMAL PLANT

**NOVO PRO** is compatible with ThermoFlow's design and simulation programs GT MASTER and THERMOFLEX.

This interaction allows the user to (techno-economically) optimize thermal power systems specifically for their role in the grid, either as a Base Load Plant, or as a Backup, Spinning Reserve or Peaker System.

## HYDROGEN PRODUCTION PLANT

**NOVO PRO** is a powerful tool for designing Hydrogen Production Plants.

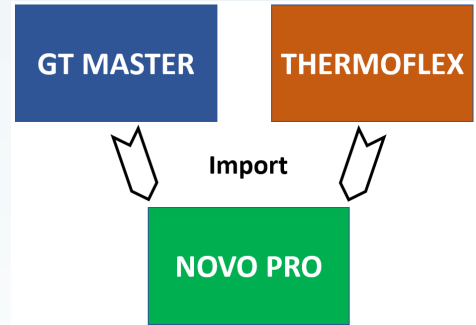
A library of commercially available Electrolyzer Packages are included in the program and available for selection. Each package is listed along with its OEM supplier, rated pure hydrogen production rate, package power consumption, HHV efficiency and part load performance.

The hydrogen generation plants can either be designed to consume excess "green" electricity from the grid, or the user can specify a desired H<sub>2</sub> capacity and NOVO PRO will help to optimize the number of electrolyzer units and renewable systems.

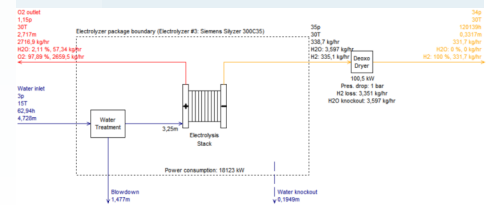
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## INTEGRATE THERMAL POWER PLANTS



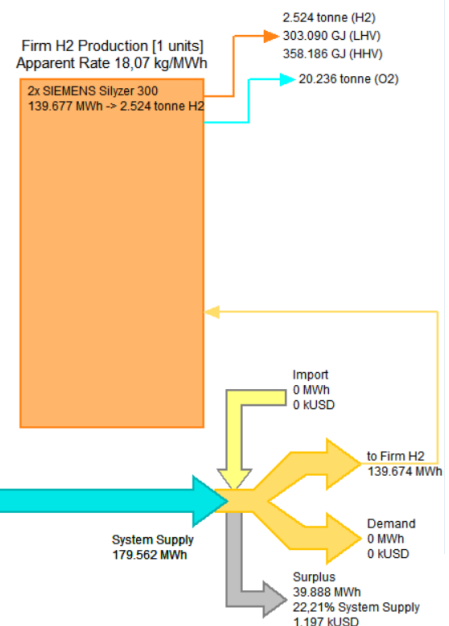
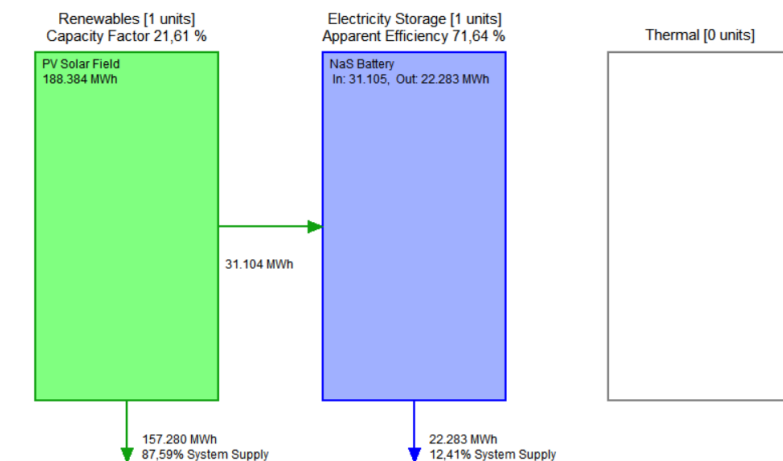
## GREEN HYDROGEN PRODUCTION



Net Electricity Revenue: 1.197 kUSD  
H2 Revenue: 4.039 kUSD  
O2 Revenue: 0 kUSD  
Total Fuel Expense: 0 kUSD  
Revenues - Fuel Expense: 5.236 kUSD

### Annual Overview

Demand: 0 MWh  
Surplus: 39.888 MWh  
Import: 0 MWh  
Curtail: 0 MWh  
H2 Production: 2.524 tonne  
O2 Production: 20.236 tonne



Microgrid Mode