Artelys Crystal City

Analysis, modelling and assessment of structural evolutions of your local energy system

With increasing decentralization of energy management and the emergence of new planning responsabilities, local decision-makers have become major players in the design of a sustainable energy system. In this context, choosing an adapted planning tool for the development of a local energy strategy is an important step towards achieving a successful energy transition.
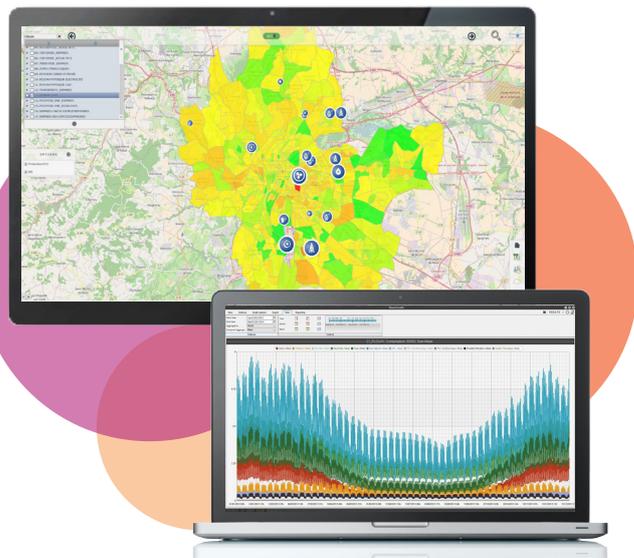
Artelys Crystal City offers local decision-makers the means to achieve an overall yet detailed grasp of their local energy stakes. It assesses action plans in an **integrated multi-energy environment**, from production to consumption, providing :

- A comprehensive local energy system model for the **assessment of structural changes**,
- An easy and independent use by local authorities for **capacity building.**

Optimize your local multi-energy system

Key features

- **Multi-energy** modelling for coordinated network development policies
- All flows simulated at an **hourly time-step** in order to account for flexibility opportunities
- A **techno-economic** and **environmental** approach with associated built-in and customizable KPIs

- **Multi-scenario** generation and analysis
- Action **monitoring** tools
- An embedded **GIS** for data and results visualization at zonal scale
- A **user-friendly** interface meant for an easy appropriation

Some applications

Our clients use Artelys Crystal City to:

- Ensure a **well-coordinated development of energy distribution networks**
- Reduce their **CO2 emissions** at minimum cost
- Locate places where **district heating network** should be densified

- Exploit their **local renewable energy potential**
- Evaluate the impact of the deployment of **flexibility solutions**
- Identify zones and building types that might require **demand side management** policies

Simulate your energy system

From local productions and energy imports to useful energy consumption, the whole local energy system is modelled, accounting for **your local specificities**, and following two key requirements: **high level of detail** and **model reliability**. Artelys Crystal City is the opportunity to gather all your energy data within one single tool, and thereby ensure **sustainable data management**.
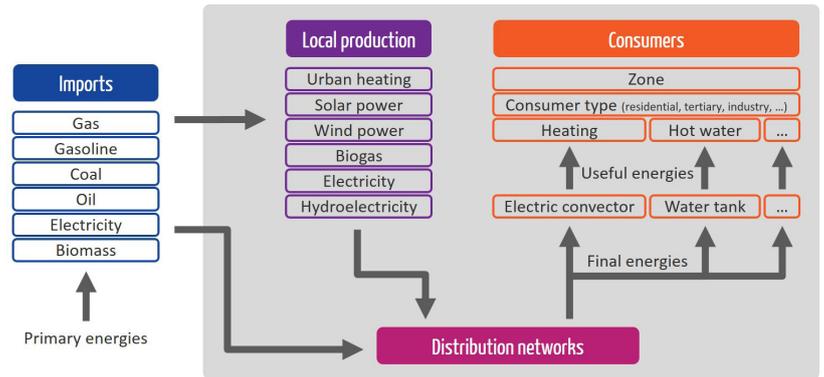
Build your own scenarios

Artelys Crystal City comes with a built-in and customizable **library of parametrized actions**, which cover a variety of structural changes including technological innovations, demand-side management policies, network extension and densification, local renewable production, etc. You can use this library to build your own scenarios, and **assess** them based on **multi-criteria analysis.**

Account for flexibility potentials

Available assets include **flexibility properties** (storage, smart grids, electrical vehicle batteries, etc.), which make it possible to assess economic and environmental opportunities linked to the **flexibility of local production and consumption**, as well as grid infrastructure cost savings linked to a **smoothened load profile**.
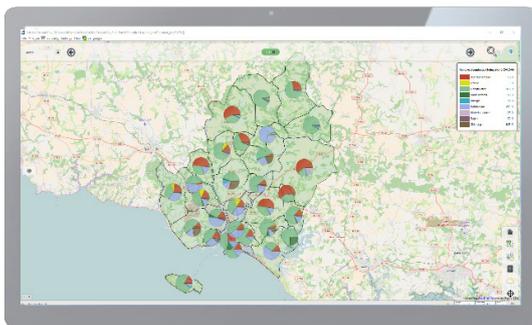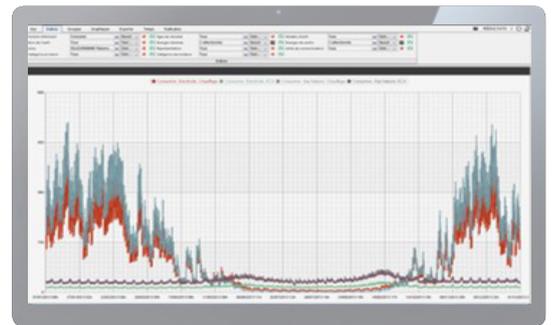
Analyze and communicate through a map...

Urban data, energy consumptions, distribution network capacities, local power plants... Any **geo-localized** data or simulation result can be intuitively clicked on the map to be visualized. These can also be **exported** in order to be integrated within your own GIS system.

... or through diagrams

Result analysis is eased by a **user-friendly display tool** which generates multiple entries tables and customizable charts through sort functions on indicator indexes.

You can use a **comparison mode** which allows to analyze the differences between two strategies or between the planned and the actual energy paths.
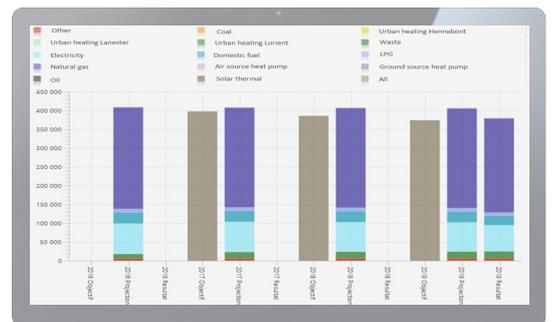
Independency and efficency

Rely on a planning tool that is developed by an independent software editor.