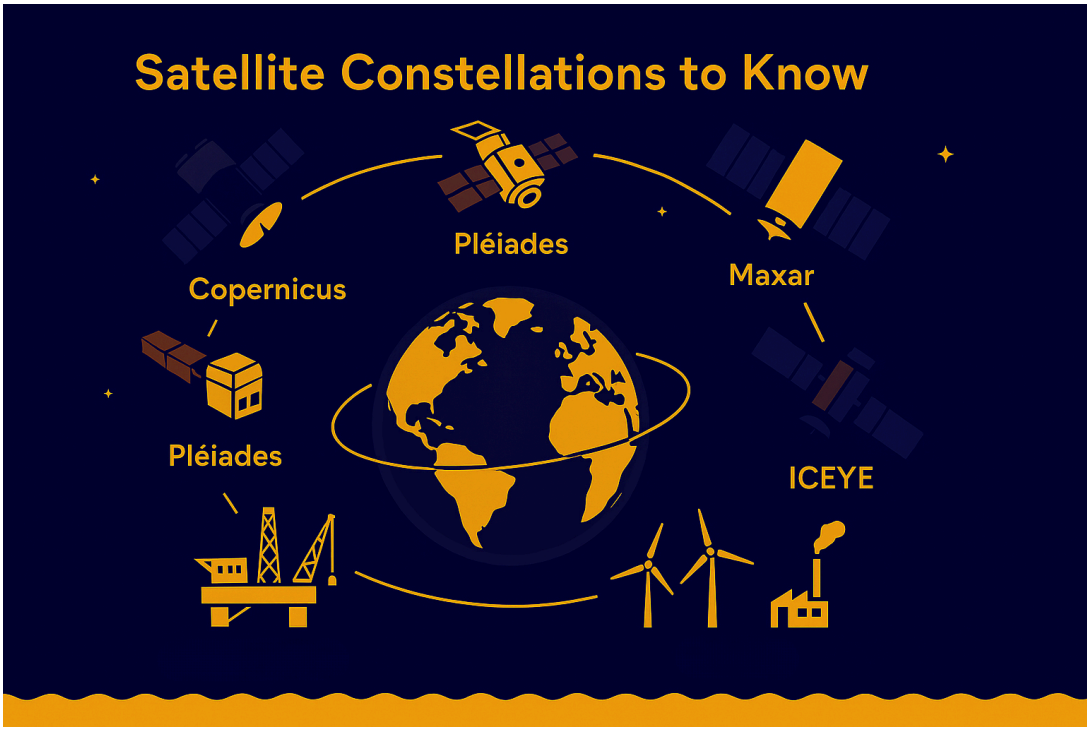
DIGITAL ENERGY

STUDY SUMMARY

Satellite data, key allies for energy network management

Fact Sheet 2

Technologies, constellations and platforms to know



Public Constellations

- **Copernicus (ESA):** European public constellation – free and open data (optical and radar imagery, all resolutions).
- **Sentinel:** Specialized satellites of the Copernicus program (land, sea, atmosphere).

Private Constellations

- **Pléiades (Airbus):** Very high-resolution imagery (up to 30 cm), paid data.
- **Maxar:** Private provider of precision multispectral imagery – paid data.
- **ICEYE:** SAR radar constellation – excellent performance for risk monitoring – paid data.

Concrete tools to help you

Several platforms and tools are already available to visualize data, estimate needs or simulate electrification scenarios.

📡 Data Platforms

They provide geospatial datasets to explore or integrate into projects.

💡 To visualize, cross-reference layers, and perform an initial analysis.

- **GIS Catalogue for Energy Planning in Africa** (IEA)
  → GIS data (population, network, resource, and infrastructure maps) – free
- **Microsoft Building Footprints**
  → Building footprints extracted by AI (e.g., 36 million buildings in Nigeria and 11 million in Tanzania) – free
  → Can be used to estimate population density, demand, etc.

🧰 Energy Decision Support Tools

These tools go further: they allow you to simulate electrification scenarios or estimate demand.

💡 To make decisions and planning choices.

- **Open Energy Maps (MIT)**
  → Estimation of electricity demand at the building level, even without a meter – free
  → Data available for Ghana, Senegal, and Uganda
- **IRENA IEP and ESMAP**
  → Electrification scenarios (on-grid, mini-grid, off-grid) with cost estimates – free online
  → Interactive tools to compare options by area

💰 Free or paid? What to expect

- Public satellites often provide free data (medium resolution), while private operators offer finer images, but at a cost.
- Tools from public organizations (ESA, MIT, IRENA, World Bank) are generally free or open source.
- High-definition images (less than 1 m resolution) offered by Airbus, Maxar, or ICEYE are at a cost.
- **Average cost: between $20 and $25/km² for a very high-resolution image.**

📌 **To remember:**
If you're looking to estimate your energy needs, there are free and accessible tools available. If you need a very fine level of detail (e.g., MV lines or specific infrastructure), you'll often have to use a paid service.