

STUDY SUMMARY

Satellite data, key allies for energy network management

Fact Sheet 5

Geospatial data: current challenges and future prospects

Powerful but not infallible, satellite data opens the way to new uses for electricity networks. Their effective exploitation requires precise knowledge of their strengths and limitations.

✓ The promises kept by satellites

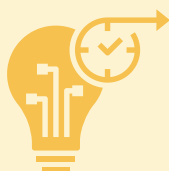
- ☐ 🌐 **Observe vast territories**, including isolated or hard-to-reach areas
- ☐ 📷 **Produce highly accurate images** (up to 25–30 cm resolution for the best sensors)
- ☐ 📅 **Return regularly to the same area**, sometimes several times a day
- ☐ 🧠 **Intelligently supplement field data**, especially when it is scarce or expensive to collect
- ☐ 🔄 **Feed automatic analyses** (AI, image processing, time series, etc.)

✗ The limits observed

- ☐ ☁️ **Optical images are sensitive to weather:** cloudy skies = no visual observation
- ☐ 💰 **High-resolution data often comes at a cost:** up to \$20–25/km²
- ☐ 🌿 Many infrastructures **are too thin** (MV and LV lines) **or hidden** (buildings, vegetation) **to be detected.**
- ☐ 💻 **Data processing requires new technical skills** and specialized tools
- ☐ 📡 **A satellite alone is not always enough:** sources often need to be cross-referenced (field, drone, GIS, etc.)

👉 **Choosing your image carefully means first defining your needs.**

Detail, cost, frequency, context: every criterion counts when selecting the right tool.



Outlook: What the future holds for us

Tomorrow



- 🔄 **Ever-increasing constellations** (Pleiades-Neo, Worldview-Legion) to cover the planet in near real-time
- 🧠 **AI tools** to automatically detect needs, anomalies, or risks
- 🔄 **Data fusion:** satellite, drone, IoT, weather data, ground sensors, etc.
- 👤 ♀ 👤 ♀ **Digital twins** of networks to test scenarios, monitor live, simulate failures, manage maintenance and natural risks.
- 🔧 **Simpler interfaces**, designed for operational and non-expert users

👉 **This future is already underway. The challenge: making these tools accessible and integrated into business practices.**