



**Observatoire Europe-Afrique 2030**

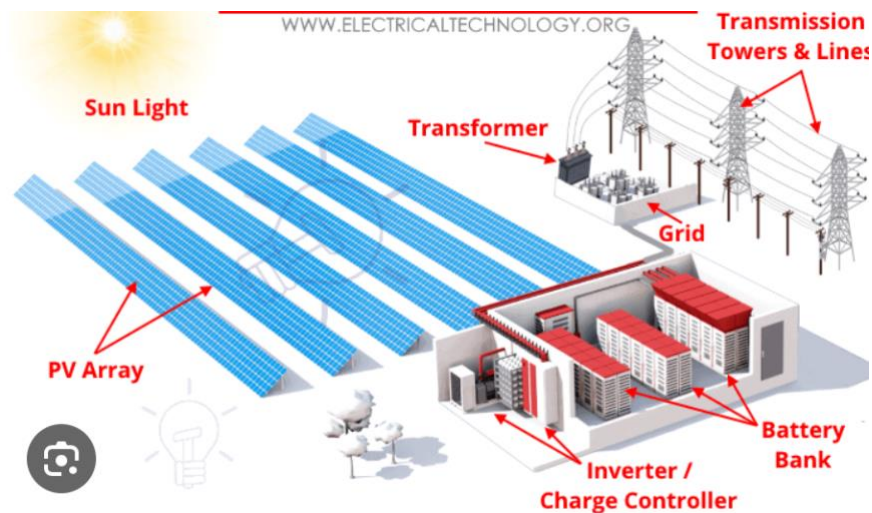
**Data Sheet « Value Chain » n°1**

**Solar Farm (photovoltaïc)**

- 1. MAIN COMPONENTS OF A PHOTOVOLTAIC FARM ..... 2**
- 2. DEVELOPMENT COSTS ..... 2**
- 3. BREAKDOWN OF EQUIPMENT COSTS ..... 3**
- 4. VALUE CHAIN ..... 3**
- 5. SOURCES OF INFORMATION ..... 5**

## 1. Main components of a photovoltaic farm

A photovoltaic farm (or solar farm, or solar power-station) is a ground-mounted photovoltaic solar power plant built on bare land. It is not intended for self-consumption. More often, they are used to generate and sell green electricity. Under the action of the sun's rays, the photovoltaic cells in the panels produce a direct current. This current passes through an inverter to be transformed into alternating current and fed into the grid. These photovoltaic farms extend over several hectares.



## 2. Development Costs

The development costs of a large-scale ground-mounted photovoltaic plant are made up of :

- land rental (if the operator does not own the land)
- purchase of the equipment needed to operate the plant (panels, inverters, transformer, security system, etc.)
- installation of the photovoltaic field (ground levelling, access arrangements, fencing of the park, installation of module supports, creation of cable trenches, etc.)
- connection to the electricity grid. Non-negotiable and very high, this amount increases exponentially with the distance separating the solar farm from the grid.

Plant operating costs include in particular :

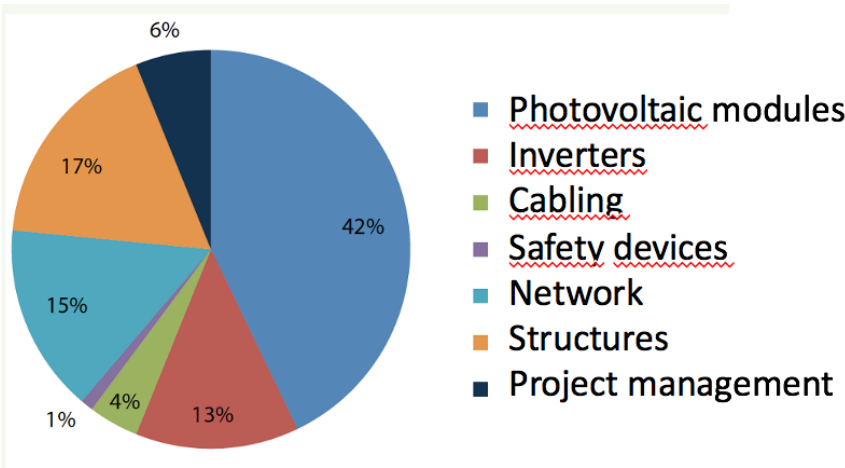
- the cost for the use of public electricity networks
- site maintenance (mowing and trimming vegetation, cleaning solar panels, security system, etc.)
- equipment maintenance (repair of damaged equipment, replacement of end-of-life inverters, etc.).

### 3. Equipment Cost Breakdown

The graph below is based on a large-scale ground-mounted photovoltaic power plant (excluding trackers).

55% of the capital costs of a solar power plant are associated with photovoltaic modules and inverters.

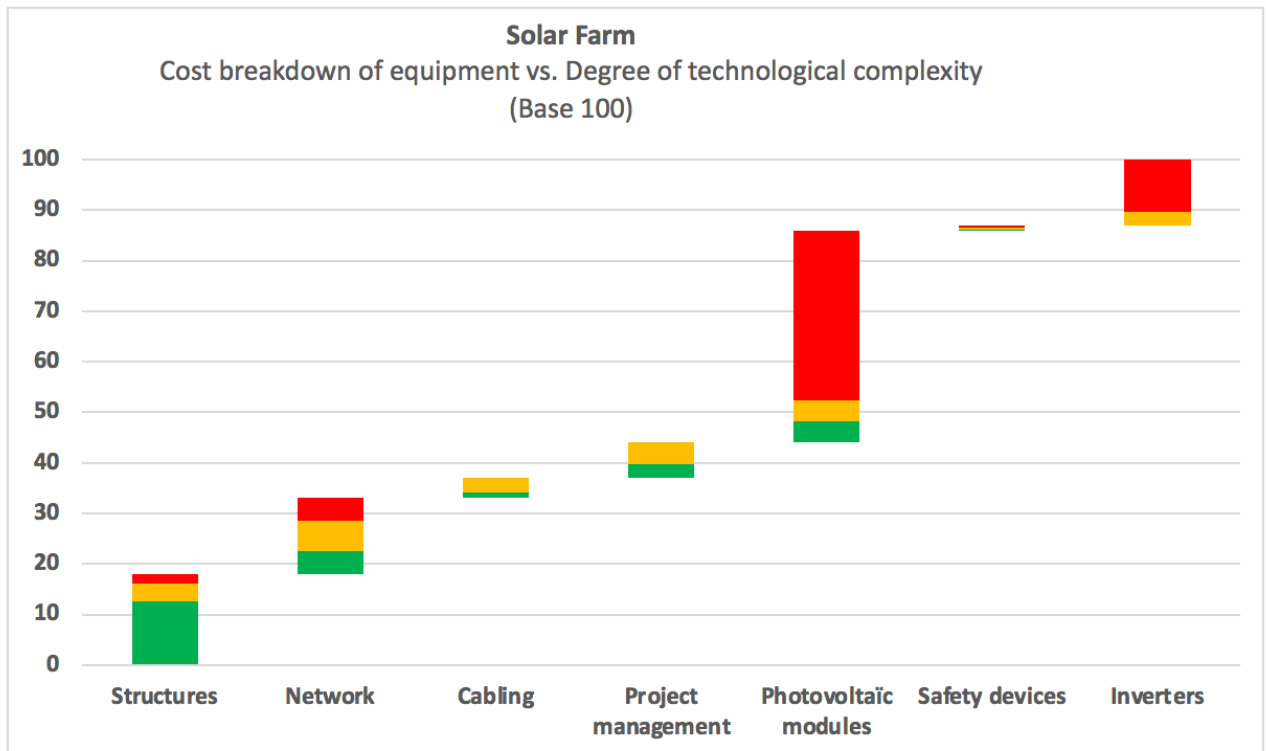
Average cost- breakdown of a solar power station



Source: Data are mainly extracted from mature European and north-American markets

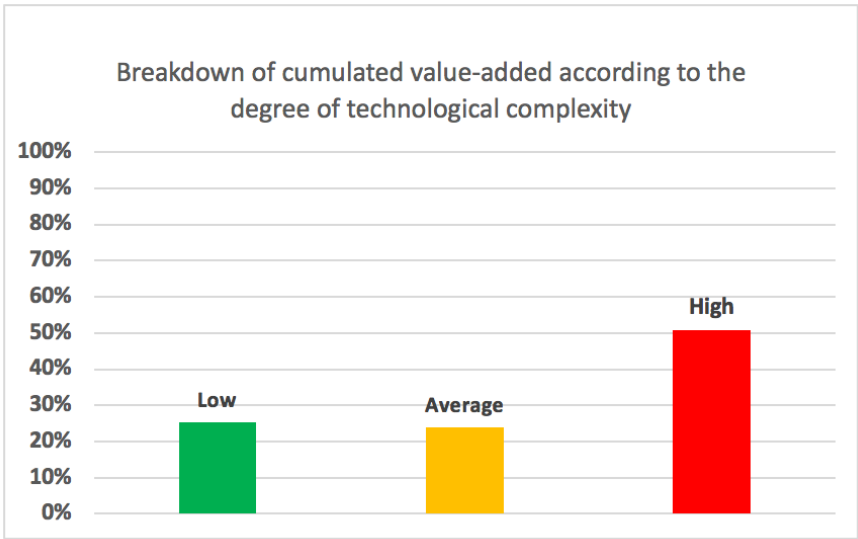
### 4. Value Chain

The modules (photovoltaic panels) and the inverter together account for around 55% of the total added value in the manufacturing process of a photovoltaic farm. These two items of equipment are mainly made up of parts with a high technological content.



Source: "Observatoire Europe-Afrique 2030". These data have been estimated on the basis of bibliographical information. They represent orders of magnitude.

Around 60% of the added value of the equipment and sub-assemblies making up a photovoltaic farm is of "low or medium" technological complexity.



*Source:* « Observatoire Europe-Afrique 2030 ». These data have been estimated on the basis of bibliographical information. They represent orders of magnitude.

## 5. Sources of Information

Les centrales solaires photovoltaïques commerciales – « Guide à l’intention des promoteurs de projets» - IFC - 2015.

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