

Industrial Craft - Power Production | Tekkit 2

IndustrialCraft 2 (IC2) uses its own energy system called EU (Energy Units). Understanding how EU tiers, generators, storage, and cables interact is essential for building a reliable power network. This guide does not go over generators that produce steam instead of EU.

Understanding EU and Voltage Tiers

IC2 power is measured in EU per tick (EU/t). Every machine and storage block belongs to a voltage tier, which defines the maximum size of EU packet it can safely receive.

The tiers are as follows:

Tier 1: Low Voltage (LV) | Max EU: 32

Tier 2: Medium Voltage (MV) | Max EU: 128

Tier 3: High Voltage (HV) | Max EU: 512

Generators

EU is produced by generators. The right generator for your current stage determines how fast your machines run and how quickly you can expand. Below is a summary of all main generator types available in Tekkit 2 on SiriusMC, organised by progression stage.

Early Game

Basic Generator

Output: 10 EU/t | **Tier:** LV

The starting point for any IC2 setup. Burns coal, charcoal, wood, and most other furnace fuels. Charcoal is the most practical early fuel, yielding 4,000 EU per piece. The Generator outputs 10 EU/t as a single packet, which is well within the LV limit, so it is safe to connect directly to Copper Cable and basic machines.

Slag Generator

Output: 12.5 EU/t | **Tier:** LV

The Slag Generator is an upgrade to the basic Generator that produces 25% more power. Additionally, the Slag Generator collects scrap randomly every 4-12 seconds, however if the generator is fuelled using the scrap it will not produce any scrap as a byproduct.

Wind Mill

Output: Variable (up to 32 EU/t in peak conditions) | **Tier:** LV

Wind mills produce EU based on altitude, weather, and surrounding open space. They require a clear 5-block radius in all horizontal directions and perform best at Y=126 or above. Output increases with weather, for an optimised wind mill that produces 32 EU/t you would need stormy weather at an altitude of 126. They are a niche early option for players who have built up high, but are generally superseded by Geothermals, due to the wind mill's sporadic nature.

Mid-Game

Geothermal Generator

Output: 20 EU/t | **Tier:** LV

Burns lava, producing 10,000 EU per bucket at a rate of 20 EU/t. This makes it twice as efficient per tick as a basic Generator and a reliable mid-game workhorse. Pair with a pump pulling from a Nether lava lake and pipe the lava in via BuildCraft fluid pipes for a fully automated, high-yield supply. A bank of Geothermal Generators feeding into a Multi-Functional Energy storage (MFE) covers most mid-game machine needs comfortably.

Thermal Generator

Output: 25 EU/t | **Tier:** LV

The Thermal Generator is the upgraded version of the Geothermal Generator. It produces 25 EU/t instead of 20 EU/t, and also gives off a small amount of passive energy from the environment throughout the day-night cycle. Using lava as a fuel source, the Thermal Generator can produce 31,250 EU per bucket at a rate of 25 EU/t.

Water Mill

Output: 4 EU/t | **Tier:** LV

Output: 32 EU/t | **Tier:** MV

Output: 250 EU/t | **Tier:** HV

When submerged in water and connected via cables to a machine or Batbox, it will produce EU continuously with no fuel cost. For maximum passive output, ensure all sides within the search area of the water mill are fully flooded. The search area differs depending on the tier of water mill: for LV water mills the search area is 3x3x3, for MV and HV water mills the search area is 5x5x5.

Alternatively, water buckets or water cells can be piped in directly for higher active output, at the cost of consuming the water as fuel. Higher tiers produce significantly more power and have a larger water search area, but are considerably more expensive to craft and run.

Solar Panel

Output: 8 EU/t | **Tier:** LV

Output: 64 EU/t | **Tier:** MV

Output: 512 EU/t | **Tier:** HV

Produces power during daylight with no fuel cost. Individual Solar Panels are only useful for charging tools or supplementing small setups. They are most valuable when combined into Solar Arrays. Note that Solar Panels require a clear, unobstructed view of the sky and produce nothing at night or during rain.

Solar Turbine

Output: 10 EU/t | **Tier:** LV

The Solar Turbine is a cheaper upgrade from the Solar Panel. It combines heat from the sun and water into steam, which is converted into energy. The Solar Turbine slowly heats up and cools down throughout the day-night cycle, increasing by 1% every 6 seconds during the day, and decreasing by 0.5% every 6 seconds at night.

Late Game

Nuclear Reactor

Output: 0 - 2048 EU/t (configuration dependent) | **Tier:** LV - HV

The most powerful EU source in IC2, and the most dangerous. A nuclear reactor's output depends entirely on how it is configured with Uranium Cells, Coolant Cells, and Heat Exchangers. An improperly configured reactor will overheat and explode. Before building a large scale nuclear reactor, you can check the design using a Reactor Planner. This will show statistics from a live simulation, such as EU/t produced, core heat, melting heat, heat effect chance, and much more. You can change what statistics you are looking at using the different tabs along the left side of the planner.

For most players, a well-tuned smaller scale reactor combined with an MFSU provides enough EU to run any late-game setup.

Situational and Environmental

Wave Generator

Output: 0 - 144 EU/t | **Tier:** LV - HV

The Wave Generator is a long-range single direction water generator that checks up to 50 blocks in one direction for water. The more water it detects, the more EU/t it produces, up to a maximum of 144 EU/t. Power production only begins once there are at least 4 solid water blocks in front of the generator. Output is sporadic and will vary between 0 and 144 EU/t.

Ocean Generator

Output: 0 - 100 EU/t | **Tier:** LV - HV

The Ocean Generator scans a much larger area of water than the Wave Generator (31x31x31) and produces more EU/t the more water it detects, up to a maximum of 100 EU/t. Power production requires at least a 31x31x31 body of water to the sides and above the generator. Output will vary depending on how obstructed the water within the search area is.

EU Storage

Energy storage blocks act as batteries and buffers between generators and machines. They accept power from multiple sources simultaneously and re-emit it at a fixed output voltage. The output voltage of an energy storage block is fixed at its tier regardless of how it was charged, so connecting LV Tier machines directly to an MFE or MFSU output will destroy them.

Block	Capacity	Max Input / Output
BatBox	40,000 EU	32 EU/packet
MFE	600,000 EU	128 EU/packet
MFSU	10,000,000 EU	512 EU/packet

Energy storage blocks output from the face marked with a dot, which faces the player when placed. All other faces are inputs. Use a Wrench to reorient the output face.

Energy storage blocks also reset cable loss calculations, making them useful as mid-line repeaters when running power over long distances.

Cables and Energy Loss

All IC2 cables lose EU over distance. Loss is calculated per EU packet, not per EU/t total. This means higher voltage is always more efficient over long distances: one 128 EU packet on Gold Cable loses less than four 32 EU packets covering the same run on Copper Cable.

In the table below the Mean Packet Loss is calculated through the loss of one EV packet (2048 EU) that travelled through the cable split into as many packets as needed.

For example: if a cable has a max packet of 32 EU, it will need to move 64 packets to meet the 2048 EU threshold, and each one of those 64 packets will result in small amounts of EU loss, which adds up significantly over time, unlike cables that have a max packet of 512 EU, where only 4 packets are moved to get to the 2048 EU threshold, resulting in less loss.

Cable	Max Packet (EU)	Mean Packet Loss (EU)
Ultra-Low-Current Cable	5	10.24
Copper Cable / Uninsulated Copper Cable	32 / 32	12.80 / 19.20
Gold Cable / Insulated Gold Cable / 2xIns. Gold Cable	128 / 128 / 128	8.00 / 7.20 / 6.40

Bronze Cable / Insulated Bronze Cable / 2xIns. Bronze Cable	128 / 128 / 128	11.20 / 10.40 / 9.60
Glass Fibre Cable	512	0.1

Glass Fibre Cable is the most efficient cable available and loses only 1 EU per 40 blocks per packet, making it the best choice for any run longer than a few blocks. It is expensive, requiring diamonds, but it is the correct long-term solution for a serious power network. Use Copper Cable for the final short hops from a transformer or storage block to nearby machines for efficiency!

Transformers

Transformers step voltage up or down between tiers. They are essential any time you want to distribute power from a high-tier storage block to low-tier machines without destroying them. There are three types: LV Transformer (steps between LV and MV), MV Transformer (steps between MV and HV), and HV Transformer (steps between HV and EV).

By default, a transformer steps voltage down from its higher-tier input face to a lower-tier output. Applying a Redstone signal reverses this, stepping voltage up. The faces are marked: the single dot face is the high-voltage side, and the three-dot face is the low-voltage side.

A practical example: an MFSU outputs 512 EU/t (HV). Running this into an MV Transformer steps it down to 128 EU/t. Running that into an LV Transformer steps it further down to 32 EU/t, which is safe for Copper Cable and LV tier machines.

Guide

[Optimising Pipe Usage](#)

Learn how to optimise your ProjectRed pipes.

Introduction

[Introduction](#)

An introduction into Tekkit 2, including how to get started and what mods are featured.

Guide

[ProjectE - EMC Guide](#)

An introduction into EMC generation from ProjectE.

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