POWER GRID

OVERVIEW

Each player represents a company that

- *pays* for **power plants** it wins in auctions,
- *pays* for the **resources** required to operate their plants,
- *pays* to connect **cities** to its growing network, and
- *earns* **income** when operating its plants to power its cities.

The **game ends** at the end of the round in which

- any player grows his network to include the target number of cities (2p = 21, 3p =17, 4p = 17, 5p = 15, 6p = 14).

The **winner** is the player who

- powers *more* cities than *any other player*; or
- *in the case of a tie*, has the most money.

CONTENTS

- **1 board** (containing a map, a scoring track, a player order track, and a resource market)
    - Germany on one side
    - USA on the other
- **132 wooden houses** (22 each in green, yellow, red, blue, purple, and black)
- **84 resource tokens** (24 brown coals, 24 black oils, 24 yellow garbage, 12 red uranium)
- **money** (in Elecktro)
- **5 summary cards**
    - order of play on the front
    - payout schedule on the back
- **42 power plant cards** and **1 Step 3 card**

PREPARATION

Lay out the common area which includes

- The **board**
- The **bank**, the cash sorted and stacked by increasing denomination
- The **resources**, laying out **24** coal, **18** oil, **6** garbage, **2** uranium(according to the picture under "resource market" on page 2)
- The **power plant market**, laid out in two rows of 4 cards (exactly as pictured under "power plant market" on page 3)
    - The **actual market** is represented by the top row of power plants (03, 04, 05, and 06)
    - The **future market** is represented by the bottom row of power plants (07, 08, 09, and 10)
- The **power plant deck** is placed next to the power plant market after
    - setting aside **Plant 13** and the **Step 3** card,
    - randomly removing a few plants (2p = 8, 3p = 8, 4p = 4, 5p = 0, 6p = 0) to the game box without peeking,
    - shuffling the deck, and
    - putting **Plant 13** on the *top* of the deck and the **Step 3** card on the *bottom*.

Each player receives

- 50 Elektros (the game's currency),
- the wooden houses of one color, and
- a two-sided summary card.

Randomly select a starting player.

Each player contributes

- one of his wooden houses to the **scoring track** just in front of but not in—players start with no cities—the number one block, and
- one of his wooden houses to the **playing order track** (one house per spot) starting with the starting player and proceeding clockwise.

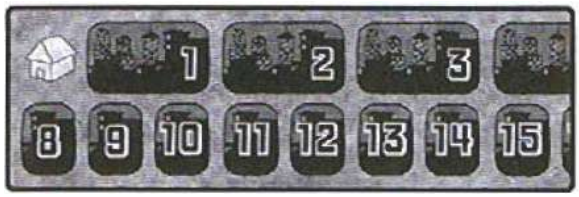
Each player beginning with the starting player and continuing clockwise selects one region

- and marks it by temporarily placing one of his wooden houses on it.
- that is separate from but adjacent to at least one region already selected (after the first has been selected).
- until the target number of regions (2p = 3, 3p = 3, 4p = 4, 5p = 5, 6p = 5) have been selected, then
    - the wooden houses used to mark in-play regions are returned to their respective players.
    - the regions not selected are sectioned off in some way to show they are out of play.

ORIENTATION

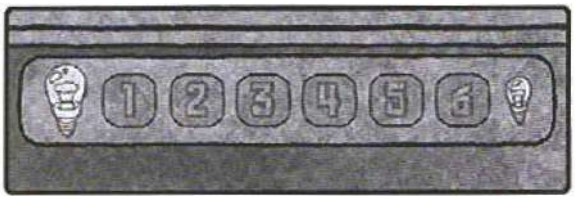
The Map

The map for both Germany and U.S.A. is divided into 6 different colored regions of which only some will be "in play."
Different scenerios will result when from one game to the next different sets of regions are selected to be in play.



Scoring Track

During the game as players connect to additional cities, their house marker is moved along the scoring track. In this way, the scoring track should clearly show how many cities are in each player's network.



Playing Order Track

The playing order track is reordered

- just after the "auction power plants" phase of the first round, and
- at the beginning of each round but the first .

This track indicates the order that players

- put up plants for auction,
- buy resources (this happens in reverse order), and
- buy city connections (also in reverse order).

Resources

There are 4 kinds of resources that are used to operate plants

- Coal (brown tokens)
- Oil (black tokens)
- Garbage (yellow tokens)
- Uranium (red tokens)

These resources appear as icons both within the price blocks on the resource market and on the power plant cards.

Resource Market

Following is the initial setup for the resource market.

The resource market is sectioned off into **price blocks**.

Each price block

- indicates the **unit price** for each resource purchased from its block (obviously, players will purchases from cheaper blocks when possible),
- has 1 slot for **uranium**, and
- has 3 slots for the *other kinds* of resources (excluding the 10, 12, 14, and 16 blocks reserved exclusively for uranium).

Power Plants

Power plant cards, in addition to an arbitrary picture of a plant, include a few key facts:

- the **number** of the plant (upper left),
- the **resource icons** identifying exactly what kind and how many resources are required to operate the plant (lower left), and
- the **number of cities** it is able to power when operated (lower right on top of the house icon).
- The color bar at the bottom is a visual clue to denote the means by which a plant is powered:
  - **brown** = coal, **black** = oil, **yellow** = garbage, **red** = uranium
  - **brown/black** = hybrid, **green** = ecological, **blue** = fusion
- The bolt expresses "powers" so that the example on the right reads, "2 garbage *powers* 2 cities".

Players may own up to 3 power plants. (up to 4 in a 2-player game)

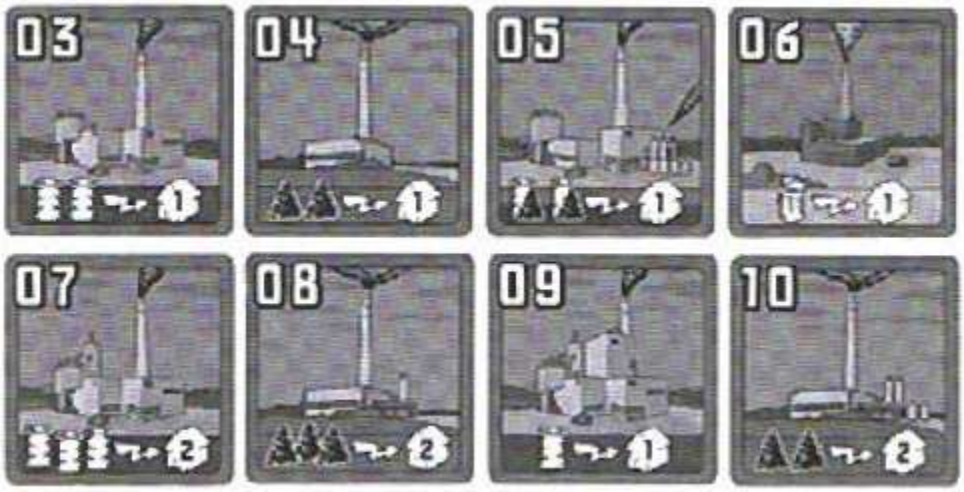
- Any time a purchase is made exceeding this limit the player must retire (remove from the game) one of his plants.
- The resources on retired plants may be relocated to another plant as the rules permit.

It should be noted that some plants

- using fusion/ecological means require no resources to operate.
- being hybrids (note the overlapping coal/oil icons) may use coal/oil resources in any combination.

Power Plant Market

Following is the initial setup for the power plant market.



The power plant market should be separated into

- an **actual market** (top) and
- a **future market** (bottom).

A plant is removed from the market when

- sold during an auction,
- one player adds a city to his network so that his number of cities matches or exceeds the number of the plant,
- entering the third stage of the game (these stages called "steps" are described later), or
- the round ends and the highest numbered plant in the power plant market is put on the bottom of the draw pile.

A plant is added to the market immediately after one is removed. Once a new plant is added

- resort the entire market into ascending order so that the 4 cheapest plants make up the actual market.
- it is possible for
    - a new plant to arrive in either the actual or future market, and
    - an old plant to be bumped into or out of the actual market.
- the market will have been restored to its original size and configuration.

THE STEPS OF THE GAME

A progressing game is divided into stages called "steps." There are three potential steps, though the game may end in any.

STEP 1

Step 1 is effective immediately as the game begins.

STEP 2

Step 2 arrives the phase after any player connects the target number of cities (2p = 10, 3p = 7, 4p = 7, 5p = 7, 6p = 6) to his network.

STEP 3

Step 3 arrives in the phase following the one in which the Step 3 card was revealed.

PLAYING THE GAME

The game is played over several rounds divided into 5 phases. In each phase, each player performs his actions before the next player goes.

1. **Determine Player Order**
2. **Auction Power Plants:** Several auctions are held with each player buying at most **one** power plant.
3. **Buying Resources:** The players can buy resources for their power plants from the resource market.
4. **Building:** The players expand their companies' networks of connected cities on the map.
5. **Bureaucracy:** Earn cash, rotate in a new power plant, and resupply the resource market.

THE FIRST ROUND

Apply the following rules changes to the first round:

- Swap phases 1 and 2: The "auction power plants" phase must occur before the "determine player order" phase.
- During the first auction each player must purchase one power plant.
- Because of these changes, the initial player order decided at the start of the game will be observed only during the first auction phase.

THE DIFFERENT PHASES

Phase 1: Determine Player Order

In this phase the player order is adjusted so that

- the players having more cities in their networks (as indicated on the scoring track) come before those have *fewer* cities, and
- to break ties, the players owning the plants with the higher numbers come before those players having the *lower* numbers (each player need only consider his own highest numbered plant in determining this).

The wooden houses are accordingly arranged on the playing order track.
Players will be observing this track for turn order during the various phases.

Phase 2: Auction Power Plants

Participating in auctions

Each round all players are eligible to participate in auctions until they have either

- passed ("opted out") when it came their turn to initiate an auction, or
- acquired a power plant in the current round.

While eligible participants remains, new auctions may be initiated.
When it comes the last eligible participan's turn to initiate an auction, he may simply purchase any plant in the auctual market for face value.

Initiating auctions

The next eligible player in normal turn order may elect to

- initiate an auction by making an opening bid (at minimum the number in the upper left of the card) on a plant in the *actual market*, or
- "opt out." (Such players are no longer eligible to participate in auctions this round.)

Subsequent bids of increasing value are made (only as money on hand permits) proceeding clockwise by players

- who remain eligible (as described in "Participating in auctions"), and
- who have not yet passed during the current auction.

Closing auctions

An auction ends when all players but one—the high bidder—have passed.
The high bidder

- pays for the plant,
- places the plant in front of himself with his other plants, and
- discards a plant—resources may be moved elsewhere as allowed—if he has exceeded his limit (3p to 6p = 3, 2p = 4).

The next plant from the power plant deck is added to the market and—if eligible participants remain—a new auction may be initiated.

No plants are auctioned

If no plants are auctioned during this phase, the lowest numbered plant is discarded and a new plant is added to the market in the normal way.

Phase 3: Buying Resources

Each player in **reverse turn order** may elect to buy resources (taking the respective tokens) from the resource market

- according to their unit costs (depicted in the upper corner of the respective price blocks),
- but not more than his plants are capable of storing.

Storing resources

Resources tokens that a player purchases are stored on his own plants (directly on the cards themselves)

- so that each plant holds
    - up to *twice* the number of resources it requires to operate, and
    - only the kinds of resources it uses (only hybrid plants depict more than one kind of resource).
- and may be freely moved between them at any time in the game so long as the above rules are observed.

The 14 plant, shown earlier, depicts 2 garbage. Thus it may hold twice its capacity, or 4 garbage.

Phase 4: Building

Each player in **reverse turn order** may elect to connect any number of additional cities to his network—including none—so long as he pays for

- the spots (if available) in the cities (costing the marked 10, 15 or 20 Elektros), and
- their connection costs.

Remember: Watch for the game end condition; this is the phase in which it is triggered.

Expansion limitations

Each city has 3 spots of increasing cost that become available as the game progresses through its steps.

- One spot is available during Step 1, two during Step 2, and all three during Step 3.
- Players may never purchase more than a *single* spot in any city no matter what the step is.

Players may only pay for cities and connections that exist within the in-play regions selected at the start of the game.

Expansion costs

When adding cities to his network a player must

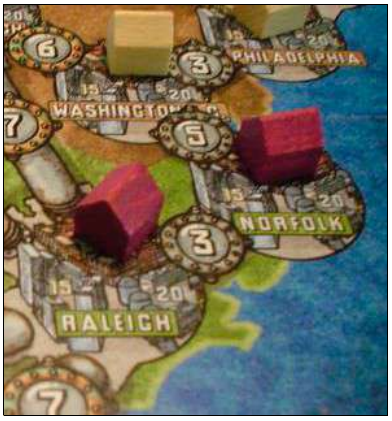
- pay the appropriate connection costs which may be
    - the cost of a *single* connection between his new city and one of his others,
    - the sum cost of a *series of consecutive connections* between his new city and one of his others regardless of whether the cities through which the connections ran were occupied,

  - free for the player's starting city, or
  - free when the new city directly adjoins (no visible connections) one of his others.
- pay the cost of the available spot (preferrably the cheapest one).

Expansion recordkeeping

For each new city spot that is purchased a player must

- place one of his wooden houses on that spot (only one house may ever occupy a spot and houses may never be moved),
- immediately adjust his score on the scoring track, and
- remove any plant from the market whose number is equal to or lower than his score and replace it with a new one.
  (There can never be a plant in the market whose number is lower than the highest score on the scoring track. This situation, even as noticed, must be immediately rectified.)



In the picture on the right, the Raleigh player who started in Raleigh (10 Elektros for the first spot) paid 13 Elektros (10 for the spot in the city and 3 for the connection cost) to connect Norfolk. In Step 1 no other players would be able to build into Raleigh, Norfolk, Washington D.C., or Philadelphia as the first spot in each is occupied and no other spots have yet become available. When with the arrival of Step 2 the second spots become available, the Raleigh player could jump directly into Philadelphia (bypassing D.C.) by paying 23 Elektro (15 for the second city spot and 5 and 3 for the consecutive connections).

Phase 5: Bureaucracy

Operate plants to earn income

Players elect which of their plants to operate. They may elect to operate

- any of their plants that have the required resources to operate, or
- **no plants** at all (this still produces an income of 10 Elektros).

The plants that each player elects to operate

- consume resources (depicted on its card, if any) that must be returned to the general supply, and
- power cities.

The number of cities a player powers is the lower of

- the summed city powering potential appearing on the plants that were operated, and
- the actual number of cities in the player's network.

Players receive income from the bank based on the number of cities they powered according to the schedule on the back side of the summary card.

Resupply the resource market

The resource market is resupplied

- according to the current "step" of the game and the number of players.
  (See the "schedule for resupplying resources" in the appendix.)
- always from right to left, so that more expensive slots are filled before less expensive ones.
  (The slots are marked by icons indicating exactly what tokens belong where. These icons and tokens are described earlier.)

Rotate the power plant market

If **Step 3** has

- *not* arrived, remove the **highest** number power plant from the future market and put it at the bottom of the power plant deck.
- arrived, remove the **lowest** numbered power plant in the market from the game.

In either case, replace the removed plant with the next plant drawn from the power plant deck (as cards remain).

This completes a game round. If the game has not ended, begin a new round.

TRANSITIONING INTO STEP 3

When the **Step 3** card is revealed

- remove the Step 3 card and the lowest numbered plant in the market from the game without drawing replacements.
- **reshuffle** the cards that remain in the power plant deck.
- the entire market becomes the actual market (normally 6 cards); there is no future market.
- Step 3 will arrive with the *following* phase.

Remember: During "bureaucracy" remove the lowest numbered plant from the game rather than putting it at the bottom of the deck.

Exception: If the Step 3 card is revealed during the "auction power plants" phase, put the Step 3 card into the future market like a real plant so that is bumps another plant into the actual market and, otherwise, finish out the phase normally *before* making the noted changes.

ENDING THE GAME

The **game ends** at the end of the round in which

- *any* player grows his network to include the target number of cities (2p = 21, 3p = 17, 4p = 17, 5p = 15, 6p = 14).

The **winner** is the player who in the last round of the game

- powers more cities than any other player, or
- *in the case of a tie*, has the most money.

THE FIRST GAME

If a player makes serious mistakes early on, he normally cannot catch up and it may be frustrating for all players.
Because of this, consider playing an abbreviated game when playing with first time players using the following rules changes:

- The game ends at the end of Step 1 which will occur when one player connects **7 cities**
- No player may connect to more than 7 cities

HINTS

- Carefully choose your starting city; have a number of directions in which to expand to avoid being cut off or crowded.
- When multiple options exist, consider expanding into the cities that could readily be taken by opponents.
- There may *sometimes* be tactical merit to not purchasing a city in the first round.
- Closely watch the scoring track; it is a good gage for determining how soon the game will end.
- Players should pay attention to the sum city powering capacity of their plants particularly near the end game. The proper timing and thoughtful development of this capacity are critical to winning.
- The game will often be decided by the money tiebreaker. Don't fall far behing on earnings. Spend carefully. Money management matters.
- When a player acquires a plant or opts out during plant auctions, nudge his wooden house slightly downward and off the player order track as a visual indication of which players are still participating in auctions. When the phase complete restore the houses to their original positions.
- Instead of arranging the power plant market into top and bottom rows, consider arranging them in one long row (just beneath the board) separating the actual market (the first 4 plants) from the future market (the last 4) using a few odd bits (e.g. extra garbage tokens). This more accurately models a queue and it is functionally easier to manage. Cards slide forward only, never from bottom to top.

CREDITS

The original rules were written by Friedemann Friese & Henning Kröpke and translated by Henning Kröpke & Jay Tummelson.
This rules revision was made by Mario T. Lanza to improve the rules usability and may in some cases use the originally authored wording.

APPENDIX

Player Number Adjustments

	2 players	3 players	4 players	5 players	6 players
Regions in Play	3	3	4	5	5
Max. Plants	4	3	3	3	3
Plants to Remove	8	8	4	-	-
Step 2 Cities	10	7	7	7	6
Game End Cities	21	17	17	15	14

Schedule for Resupplying Resources

	2 players			3 players			4 players			5 players			6 players		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
coal	3	4	3	4	5	3	5	6	4	5	7	5	7	9	6
oil	2	2	4	2	3	4	3	4	5	4	5	6	5	6	7
garbage	1	2	3	1	2	3	2	3	4	3	3	5	3	5	6
uranium	1	1	1	1	1	1	1	2	2	2	3	2	2	3	3