

Welcome to the first public iterations of ElectraSeed Fun! A table top game inspired by [Le Grand Jeu](#).

This is the game facilitator notes: Please keep in mind you're a facilitator who helps players to experience complex systems, token engineering mechanics in a fun and engaging way - not a teacher explaining them what e.g. token bonding is or why it is sensible to scale clean energy access and how.

The goal of the game is to spread empowerment of local communities by solar power, [affordable access to clean energy](#). Much in the [spirit](#) of [Solarpunk](#), we invite you to co-create a positive, fun story.

In this very first iteration, we layout the barebone mechanics - and its original intention (by no means engraved in stone, but certainly one of the drivers) to explain the cryptoeconomic building blocks of [ElectraSeed Fund](#): a decentralized, crowdsourced algorithmic fund to directly [invest in & scale solar smart microgrids in the Global South and North](#).

One fundamental building block is the so-called [Augmented Bonding Curve](#). It has been simulated in using [cadCAD](#) in cyberspace. ElectraSeed Fun! allows a group to simulate it within a game in real life.

A second intention is playtesting the ecosystem of ElectraSeed Fund - for this the game makes use of the cards developed for [Ecosystem Design Toolkit](#).

We are playtesting this [for the first time at the Odyssey Connect side event on February 4 in The Hague](#). This document will come alive during the game night and evolve thereafter. Here are a few [impressions](#) of the game night.





The game board lays out the globe. We use the terms Global North and Global South to hint at our current day inequality in terms of (financial) infrastructure - but also to make us aware that its one globe, and there is so much potential in balancing this inequality.

Announce, for example:

[“By 2030, ensure universal access to affordable, reliable and modern energy services.”](#)

This means in less than 10 rounds, you and your co-players must balance the value flows. Value is both revenues and impact.”

With respect to solar smart microgrids, this means revenues from the sale of electricity to the local community - as well as the social, environmental, and economic impact clean energy access creates within that community and region.

A balanced flow of value through the disparate smart microgrids across the globe, steady state in a dynamic ecosystem, is to be achieved and maintained as a group. Individual player with the most impact wins.

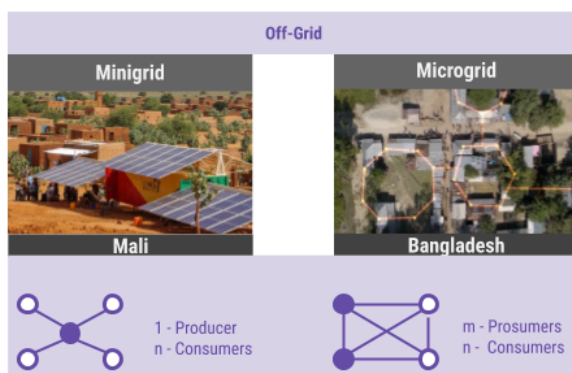
In future game events with more than one table, the winning table has the most areas across the globe covered with solar smart microgrids.



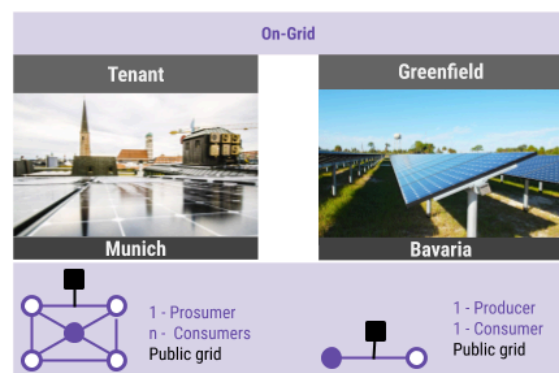
In this version players at the table are operators of the solar smart microgrids. They have different technological solutions, with

- varying yields
 - depending on PV/storage capacity=fix, solar radiation=random, but higher in GS,
 - local energy demand= random, but with a fix component in GN)
- differing impact
 - number of people with access to electricity (=consumers),
 - number of people generating income through access to electricity (=prosumers),
 - economic impact correlates with increase in energy demand,
 - environmental impact depends on the local energy mix in case of connection to a public grid; and in case of offgrid, e.g. replacement of diesel generators

(1) off-grid physical communities



(2) on-grid virtual communities



examples of solar smart microgrids

Yield is represented by black beans.

- Some portion of the yield goes towards operations, maintenance local tax and levies, e.g. 1/3rd in GS and 2/3rds in GN;
- Yield increases in the GS with every round, whereas decreases in the GN (whereas fix component remains unchanged)

Impact is represented by white beans.

- Social (see above, in addition potential for access to digital health and education services, etc.)
- Environmental (see above)
- Economic (especially sustainable development, communication and financial infrastructure, distribution channel for other services)

Capital cost (i.e. investment) is fix, potentially with a random component/higher for experimental, highly innovative settings, risky endeavors (e.g. geolocation), and logistics & deployment. Operators need this much black beans to get started.



Two game boards Global South & North; player cards for smart microgrid operator for starting, ecosystem design toolkit taking notes, and for discussions; beans resemble revenue, impact, and the bonded token SEED; 2 sets of Dungeons & Dragons dices to model Fortuna, probabilities; post-its for whatever contractual agreements may

PEOPLE HAVE
HARD TIME
USING & ELEC.
IN PRODUCTIVE
WAYS
*Wages still too low
to make good*

HYPER-IND
USTRIALIZA
TION DUE
TO ENERGY
ACCESS
*environmental
catastrophes &*

NEIGHBORING
AREAS LATCH
ONTO YOUR
MICROGRID
*"people don't want
our dirty energy"
w/ electric fences*

ARE
QUALITY
WORTH
MOTHER OF
INNOVATION
↓
PV = HARNES
DIFF. RADIAT

CONT'D EFF.
IN COST &
SIZE OF
SOLAR MICRO-
GRID COMPON
ENTS
*code, taxes, electricity
rates, etc.*

GLOBA
WARMING
& HOT DAYS
THROUGH
THE ROOF!
*Solar Panel efficiency
decreasing
every second*

TRUMP BOMBS
BAVARIA !!
*Oil from US
Closes a main source of supply
there, without international
trade, and without energy
diversification, heat energy
expensive. Higher prices
will mean C&E, no money over*



0.3 Throw a dice to compute final capital costs (luck plays a huge role in any business
;) Throw dices (<todo: balance) for the first rounds

In order for you and other players to keep track, please note the data down in your member's profile:

Member name	
Characteristics	
Valuable assets	Valuable capabilities

- By depositing data to derive impact indicators and future cash flows to ElectraSeed Fund, operators get SEED minted:
 - SEED is the bonded token
 - 1 SEED:({x black, y white}), to be experimented with and/or simulated with cadCAD (curvature + valuing whites, i.e. impact alongside revenue (blacks) - interesting restrictions: 10 rounds cap; playable: flat, proportional; amounts of black&whites, and their proportion bonded per SEED change over time)



*Important: as facilitator your job is **not to explain** bonding curves - it is to lead the game, such that **players experience** the mechanics!.*

And the fun-ding begins

Pro note: Here we can introduce in future versions, variations of Token Curated Listing, Conviction Voting as in Commons Stack. In this first iteration we have simple staking for token curated listing. This scheme determines how players can participate in allocating reserves in the Funding Pool towards which smart microgrid projects that need funding.

Note: As explained in the following, there's a mechanism to incentivize curation in the first place. Is the mechanism well balanced, such that players not only stake on their own projects? After all, funded projects will determine the perceived value of the minted SEED token as well as determine the outcome for the game, i.e. sustained funding and projects to cover the boards with clean energy access in less than 10 rounds; and or balance the value (revenue & impact) flows. And how do players (and SEED holders/demand) react to extreme events? *Have fund analyzing these and to perturb the system in order to trigger these reactions.*

Ultimately players understand which portions of the rules they can change to adapt bonding dynamics towards meeting their collective goals: e.g. balancing impact with financial sustainability, and hence, scaling clean energy access across the globe.

And better yet, they collectively come up with entirely new parameters that help them reach their common goal. Is the system resilient against 1 player doing their thing solely? Or against players colluding by incentivizing system-wide goals? *Get the convos going!*

Experience the Augmented Bonding Curve

The Reserve is all currency bonded to the contract. In the case of ElectraSeed Fund we even have the case where relevant data on other aspects than cash flow itself (nominated in a currency) - are treated as currency (read on!).

Fun fact: Money is data :) it's the information points on a ledger.

Hence, it only depends on our common understanding whether and how much we as a society value data about social, environmental, and economic impact to “SEED and buy-in.”

Interesting: the cashflow might be nominated in Tk, XOF, EUR, USD,...ETH,DAI. What does that mean for The Reserve? How does it affect The Funding Pool and cashing out? e.g. Event: “The currency of your country devalues”

The Funding Pool is a portion of the reserve currency that is earmarked for funding the smart microgrids listed for funding in a round.

Players can/should decide on the split, to balance value flows - in the beginning just $\frac{1}{2}$ or toss a coin for $\frac{1}{3}$ or $\frac{2}{3}$

SEED is the ElectraSeed Fund token issued by the augmented bonding curve.

Augmented Bonding Curve Mechanics

People who want to support the players can buy the tokens called SEED.

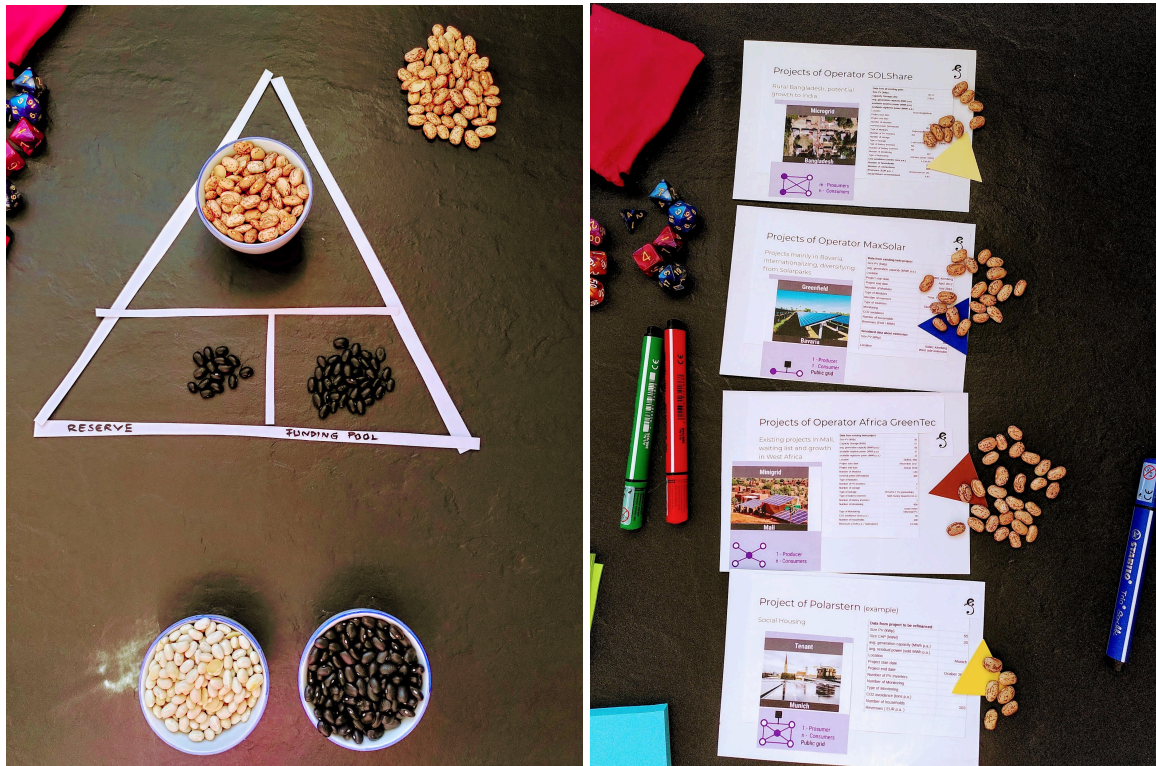
Dice indicating demand for SEED can be run by facilitator and/or crowd around the table can buy SEED. At this point (early adoption, there is no value accumulated from the projects yet, only data about their potential, existing value flows yet outside the system) the story can be e.g.:

- UN SDG 7 supporters,
- community supporters, e.g. diaspora, local demand/crowdfunding
- people who value the social, environmental, and economic impact that the projects have (proven by increasing amount of the white beans in the reserve), are buying SEED

Note: Ask those who start buying SEED: why? Ask those who don't and are around the table: why not?

The amount (in fiat, or any other currency used) goes into the Reserve and the predetermined split goes into the Funding Pool.

Fun fact ;) in geekspeak this is also called “bond-to-mint”, meaning the amount sent to the contract, causes the minting of SEED token, bonding the amount sent into a so-called reserve. Now with funding mechanisms added (augmented) a portion of the amount goes into a funding pool.



The Bonding “Curve” mints SEED when any currency is bonded (i.e. deposited into The Reserve of which a portion goes to the Funding Pool, here $\frac{2}{3}$. SEED is used to curate projects to be listed in each funding round. Any SEED holders, including the project operators can stake their SEEDS. Will they also choose “competing” operators? Are the incentivizing parameters well balanced to win the game?

Initial funding campaign/round

The staking (/voting) mechanism (allocation of funds)



Now that players at the table (project operators) have contributed data and committed future cash flows, hence, receiving newly minted SEEDS - they can bond these too, to get their and/or any of the other projects listed (fund allocation). With this, they stake their SEEDS directly towards the funding pool.

Interesting point in game play: How do players argument their weighting of the list

(if not enough money is there for all projects / expansion). They have multiple objectives: secure sufficient funding to remain in business of bringing access to clean energy, but also seeing that other smart microgrids have more positive impact, which should also be balanced, and scale energy access across the globe.

The stakes on the unlisted project(s), i.e. those who didn't make the cut, gets redistributed amongst all who staked on the projects who got into the funding round. This is basically the **token curation incentive mechanism**.

Add-on, if there is a crowd around the table as bystanders, they can take the **role of curators**. If so, ask the crowd, e.g.:

- Do you have a tip where, how, what should be built by the operators (players at the table) next? Help them to articulate (asset information card or, on member card), **to earn SEED and use them to stake** on the next round, if you were a good **curator of impact**, and others thought so too, to stake on, you get fractional SEEDs of all staked seeds on projects that didn't make it to this funding round.
- You can also help those who didn't make it with ideas, how to survive the crazy! events that might have hit one or the other player, improve cash flow, or positive impact etc. At the end we all share the same goal: Balance Impact, scale clean energy access equitably across the globe.



End of funding Initiation:

Does the Funding Pool have enough to fund at least 1+ projects?

Listed ones, who get funds from the Funding Pool:

- First need to cash-out (sell SEEDs back to the curve) to pay capex and opex
 - Geekspeak: burn-to-withdraw
- Operate their assets, get revenues
- Deposit share of their revenues (black beans) and deposit all of their impact indication data (white beans) with the Reserve;
- Get SEEDs minted in proportion

At this point, or during next rounds, also debatable what are good numbers, splits

At some point crowd of bystanders around the table (and anyone at the table as well) can/would start buying SEED, if the financial mechanics are sound; SEED holders are incentivized to improve mechanics of bonding, through optimizing parameters; to surface relevant information and share knowhow as curators, and “bet on” projects that are now equipped with enough funding, knowhow and supporters to scale access to clean energy sustainably. Spur discussion, consensus - do differing proposals for same parameters/projects get staked on?! Facilitate co-design.

In the beginning of each round e.g. a global event card is drawn, players get to throw a dice each 1:bad fortune; 6:good fortune, etc. etc. Here play with your imagination, and your solarpunk style. Any new ideas for events that create interesting dynamics, please do note them in the “Event Cards” section.

Reflections after the game

This sheet is based on Elinor Östrom's commons governance rules. Ask the round of players and bystanders to talk about and jot down what the questions bring about, or after playing the game how would they decide on these questions. Could they already? What is missing?

Have Fund! ;)

THE ECOSYSTEM'S GOVERNANCE

APPLICABLE TO MISSION-CENTRIC ECOSYSTEMS

Case

Question	Your ecosystem	Theory-based guideline
How (precisely) it is defined who is ecosystem's member and who is not?	<i>Relatively vs. strictly? How, why?</i>	<i>Define clear group boundaries.</i>
How generic or localized / customized are the rules governing the actions in the ecosystem?	<i>Very customized vs. very generic? How? Why?</i>	<i>Match rules governing the use of community resources to local needs and conditions.</i>
Who can participate in modifying the rules?	<i>Only one member vs. all members? Who? How?</i>	<i>Ensure that those affected by the rules can participate in modifying the rules.</i>
What is the ecosystems legitimacy / authority toward external stakeholders/regulators?	<i>Not respected vs. very respected? By whom, how, why?</i>	<i>Make sure the rule-making rights of community members are respected by outside authorities.</i>
How ecosystem member behavior and rule compliance is monitored?	<i>By whom? How?</i>	<i>Develop a system, carried out by community members, for monitoring member's behavior.</i>
How are member misbehaviors sanctioned?	<i>By whom? How?</i>	<i>Use graduated sanctions for rule violators</i>
How are disputes (misbehaviors, sanctions) resolved in the ecosystem?	<i>By whom? How?</i>	<i>Provide accessible, low-cost means for dispute resolution.</i>
What kind of (community resource) governance layers there are in the ecosystem?	<i>Who are operating in which layers? Why? what is the interplay of the layers?</i>	<i>Build responsibility for governing the common resource in nested tiers from the lowest level up the entire interconnected system.</i>

This work is based on Elinor Östrom's work on commons governance. CC-BY-SA.

