



FINANCE
CLUB IITR



A Corporate Finance Competition

Finvista

Agam Pandey- [LinkedIn](#)

Krish Sharma- [LinkedIn](#)

Executive Summary

- Enter the renewable energy market by targeting the **distribution segment**, leveraging the dominance in coal industry distribution.
 - 1. Rural Mini-Grids: Invest in R&D to develop and operate mini-grids powered by solar and wind energy in rural areas, gradually expanding services to other regions.
 - 2. Diversify your services to maintenance, after-sale services
- **Merge with an established brand to enter the geothermal market**, capitalizing on potential incentives offered by the government.
- Due to low demand and high upfront costs, **refrain from entering the tidal energy segment**.
- Once a stable establishment is achieved in distribution and geothermal, **slowly diversify into manufacturing and transmission segments, directly competing with the duopoly**
- TerraFuel currently has a coal industry worth a capacity of over 100 GW, aimed for a market entry into renewables with a capacity of over 190 GW.
- The market is growing at a rate of 8.5%, driven by environmental concerns, government incentives, and other factors.

With established networks in distribution, geothermal, manufacturing, and transmission, aim to directly compete with the duopoly, targeting their dominant 80% market share.

How TerraFuel can maximise advantage of the govt. incentives?

- **GTAM (Green Term Ahead Market)** is a government-launched platform allowing the trade of renewable energy through electricity exchanges. It is currently focused on large-scale renewable energy, but there has been increasing interest in expanding GTAM to include small-scale projects like Distributed Renewable Energy.
- **Focus on project types and Identify states with higher tax exemptions**, because in the Distributed renewable energy market, some states offer exemptions ranging from 25-50% for a specific time duration, while some might have no exemption. This is also affected by the type of project.
- **Consult professionals have the expertise, to claim maximum exemptions**, by complying with all the guidelines

Revenue streams TerraFuel should develop

- Distribution services for renewable energy products, primarily targeted at rural areas
- The charge for services, such as installation, maintenance, and after-sale support for solar and wind-powered mini-grids
- Integrate extra services, powered by the mini-grids.
- Revenue from geothermal energy, in generation and distribution
- Take advantage of govt incentives, subsidies, and tax rebates for cost-cutting and profitability enhancement

Assumptions to address the information gap

Due to a lack of information available regarding the exact operating segment of TerraFuel and Duo companies (with 80% market share), we had to make the following assumptions, to arrive at an optimal solution

- Duo-Companies currently operate in the generation and transmission of renewable energy, and the end distribution of energy is not served by any major enterprise.
- Hydro-renewable and biomass energy are not included in the analysis, for more focused analysis on solar, wind, geothermal and tidal, as mentioned in the problem statement
- The tidal and geothermal market is not presently dominated by any major enterprise, with very many small players.
- The solution of entering into the distribution market is illustrated through example of solar power only, the same process is advisable for wind energy

The primary challenge is to break down the duopoly and establish Terafuel as the dominant player in the Indian renewable energy market.

- TerraFuel is an established market leader in the Indian Energy Sector with a monopolistic share of 70% in the coal market.
- They are contemplating entry into the renewable energy market, which is currently dominated by two companies with a total of 80% share and 20% share for the remaining smaller players
- Solar and Wind power plants are dominant, while tidal and geothermal sectors are not explored much
- Capital-intensive to enter

Driven by a conscious shift to adopt sustainable practices, the attraction of govt. subsidies for renewable projects, such as significant tax rebates, better credit options, and other ESG benefits

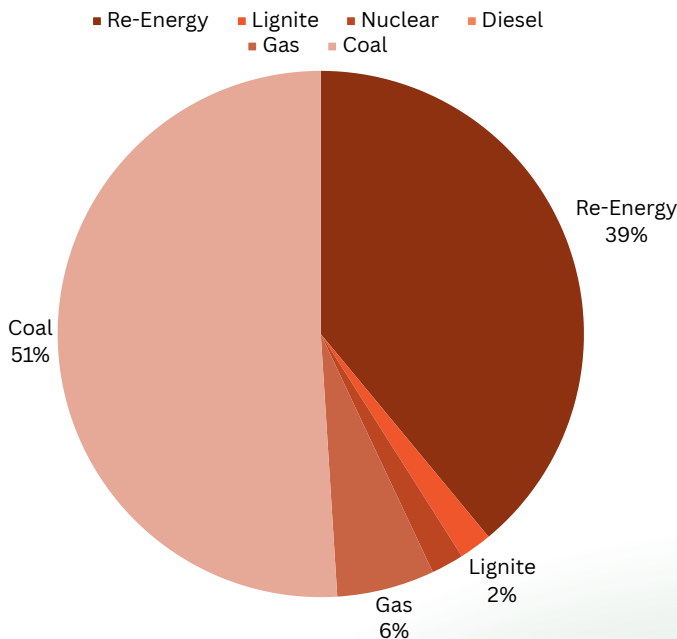
End-Goal

Take complete advantage of govt incentives, achieving short term profitability and dominant market share in the long run

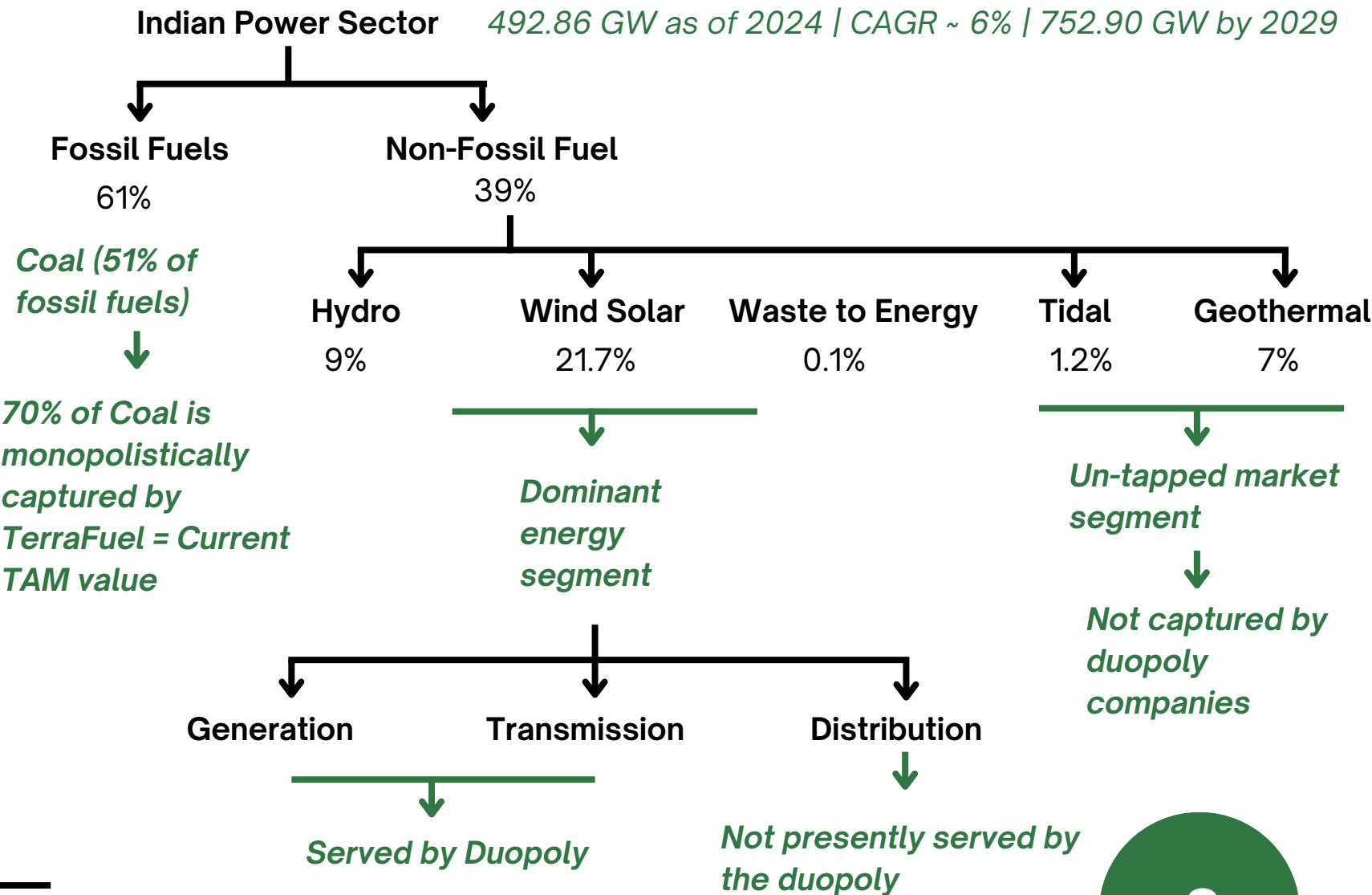
Re-Energy Market in India

- India is the world’s 3rd largest producer of power from renewables, with ~40% of its installed electricity coming from non-fossil fuel sources
- By 2027, **57% of generated power** will come from **Re-energy sources**, according to Central Electricity Authorities
- From 2017-18 to 2021-22, per capita energy consumption has grown from 1149 KWh to 1255 KWh, leading to more demand in the future for better and sustainable energy alternatives

All India installed capacity as of 2022 (MW)



- Out of 61% contribution of Fossil Fuels to the Indian power sector, 51% of it is contributed by coal only.
- We know that TerraFuel has captured 70% of the coal market, Hence **current TAM value** for the company = $492.86 * 0.61 * 0.51 * 0.7 = 107.33$ GW
- 21.78% of total installed capacity is from TerraFuel solely
- **As the distribution segment of wind and solar energy is not currently part of Duocompanies, TerraFuel can use this space to enter the solar-wind market by expanding its services with installation and supply-energy infrastructure development.**
- **Tidal-Geothermal are not explored much, low market share but might have growth opportunities, can be used to capture quick market share**



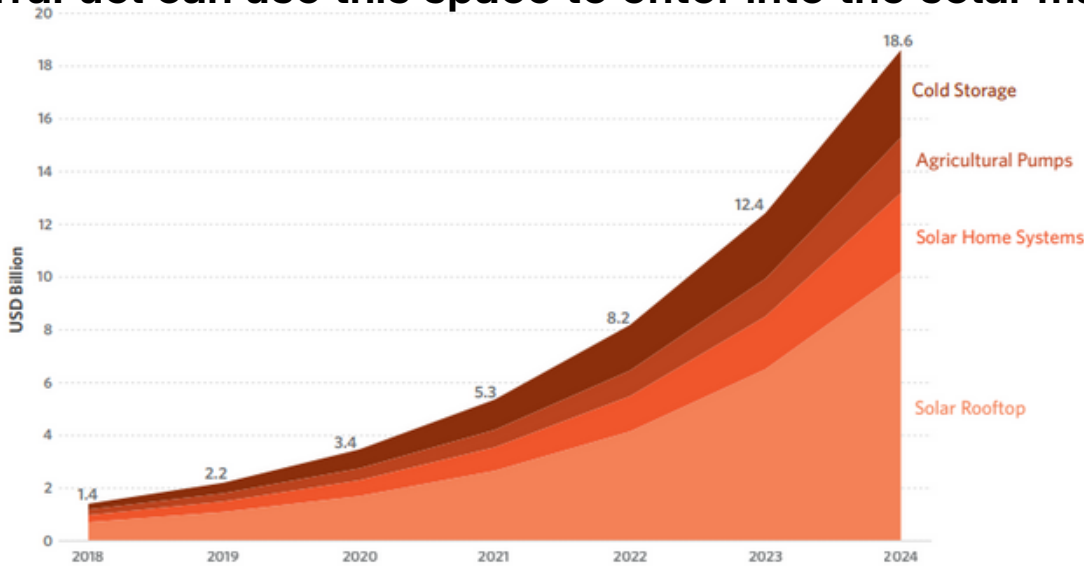
*Assumptions are being made here

Use the space to enter into the renewable energy market, allowing you to explore opportunities in the solar-wind market segment, further diversifying your energy portfolio.

- The solar-wind market is mainly dominated by two companies, which hold an 80% share. When it comes to **distribution**, we anticipate capturing **40-60% of the market**.
- Why this range? Starbucks has entered the market with a focus on brand and premium offerings, aiming to secure a leadership position with approximately 40% market share by setting itself apart from local coffee shops.
- In terms of generation and transmission, this sector is predominantly controlled by just two companies, making it challenging to gain a share from the duo
- However, it may be possible to secure a modest 5-10% share from the remaining smaller players (constituting 20% of the market in total), considering your pre-established network and dominant leader in the coal industry
- By gradually establishing a presence in the market, TerraFuel can capture more share in the duopoly market.

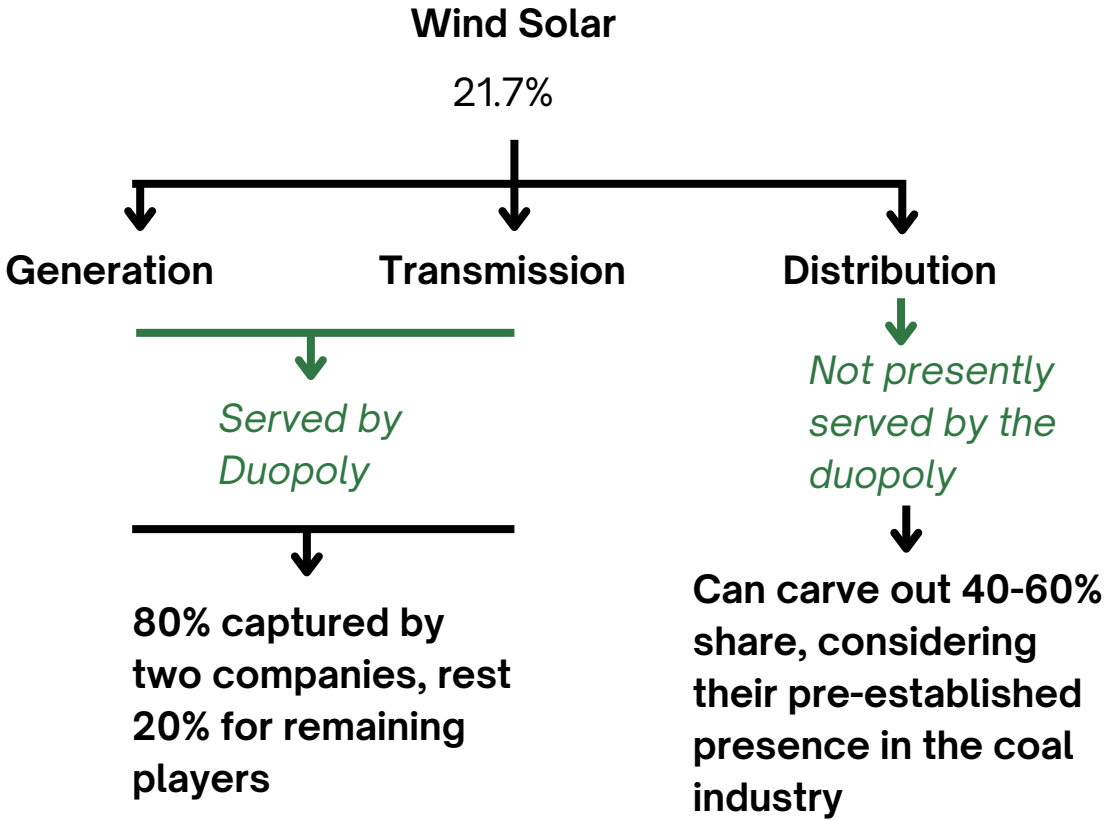
What are Distributed Re-energy projects, and how TerraFuel can use this space to enter into the solar market, competing indirectly with the duo-giants?

- **Distribution Renewable Projects** generate energy closer to where it is consumed, in smaller units, instead of relying on large, centralized power plants.
- Till now the focus of the Indian govt has been more towards large-grid-scale solar, requiring an increase in distributed renewable energy projects (DRE), largely reliant on philanthropy or subsidized private funding
- Though smaller in size, they are anticipated to have huge scaling potential
- As per the CPI report, India will need an annual DRE investment of USD 18 B by 2024, a 10X increase in current levels



Annual investment is growing from 1.4 to 18.6 USD Billion during 2018-2024, with Solar Rooftop being the major contributor

- **Invest in R&D and leverage your pre-established network**
- **Develop and operate mini-grids, powered by renewable energy like solar, and wind in rural areas.**
- **Diversify your services to other areas along with maintenance, storage batteries, financing options for the end consumers, and after-installation services.**
- **Form a dedicated legal team to analyze and address the regulatory hurdles hindering DRE investments**



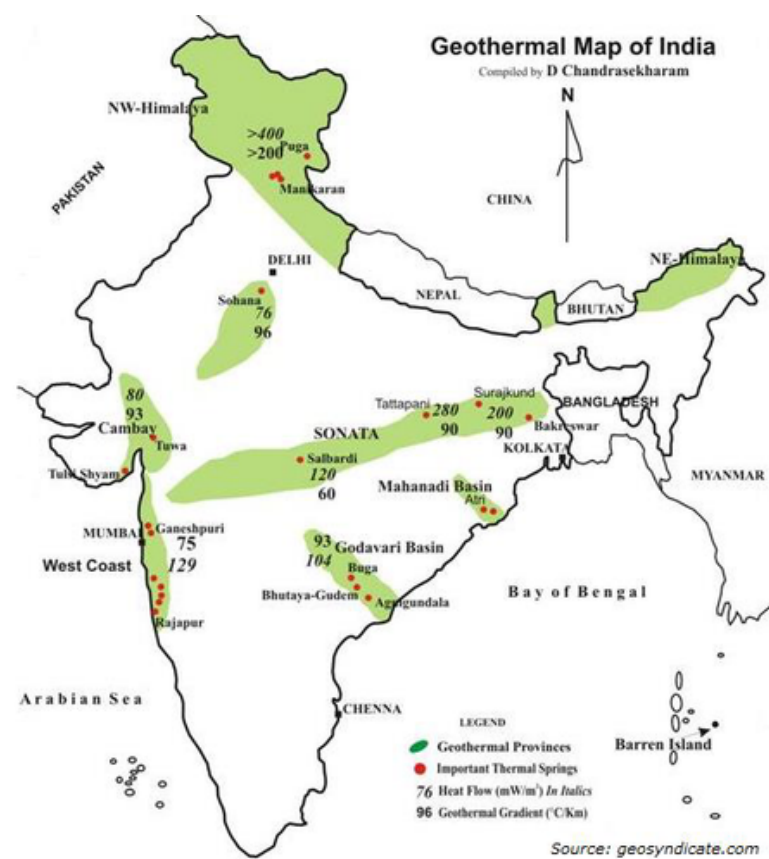
Risks factors to consider

- Due to the Rooftop Solar (RTS) subsidy rollback in around 2021, state electricity companies turned hostile towards RTS as they foresee losses in revenue and a longer-term threat of disintermediation
- But today, as of January 2024, the central financial assistance still offers financial incentives for RTS installations, some states like Andhra, and Telangana reduced their subsidy percentages compared to 2021
- So, currently entering DRE projects, through RTS is heavily dependent on the state we are interested in, and the type of project (residential, commercial, etc)

Exploring the untapped, and slowly penetrating into the duopoly market

Geothermal Landscape in India

- The Geological Survey of India has discovered around 340 hot springs, as of 1st April 2023.
- The geothermal provinces of India have the potential to generate around 10,600 MW of electricity, compared to 748 GW of solar potential
- The MNRE provides significant incentives, and subsidies for geothermal energy research, design, development, and demonstratio
- The risks associated with geothermal energy include the diverse nature of the geothermal hotspots, which are often located far from areas in need of energy. Many ideal locations for geothermal energy production are situated in tectonically active areas.



Most promising geothermal energy sites in India

- **Given the significant risk factors associated with finding the right location, resistance to earthquakes and volcanoes, transmission barriers, and high upfront costs, establishing a presence from scratch in the geothermal energy sector may not be the most viable way to enter the untapped market for TerraFuel.**
- **However, the opportunity to quickly gain a market share of up to 60% cannot be overlooked.**
- **Merging with an already established brand in the geothermal sector could be the potential solution.**
- **After merger, both companies are owned by a single entity only, not separately**
- **It is important to carefully assess the company, its location, its value chain efficiency, and growth opportunities, and to utilize the available resources.**

Tidal Landscape in India

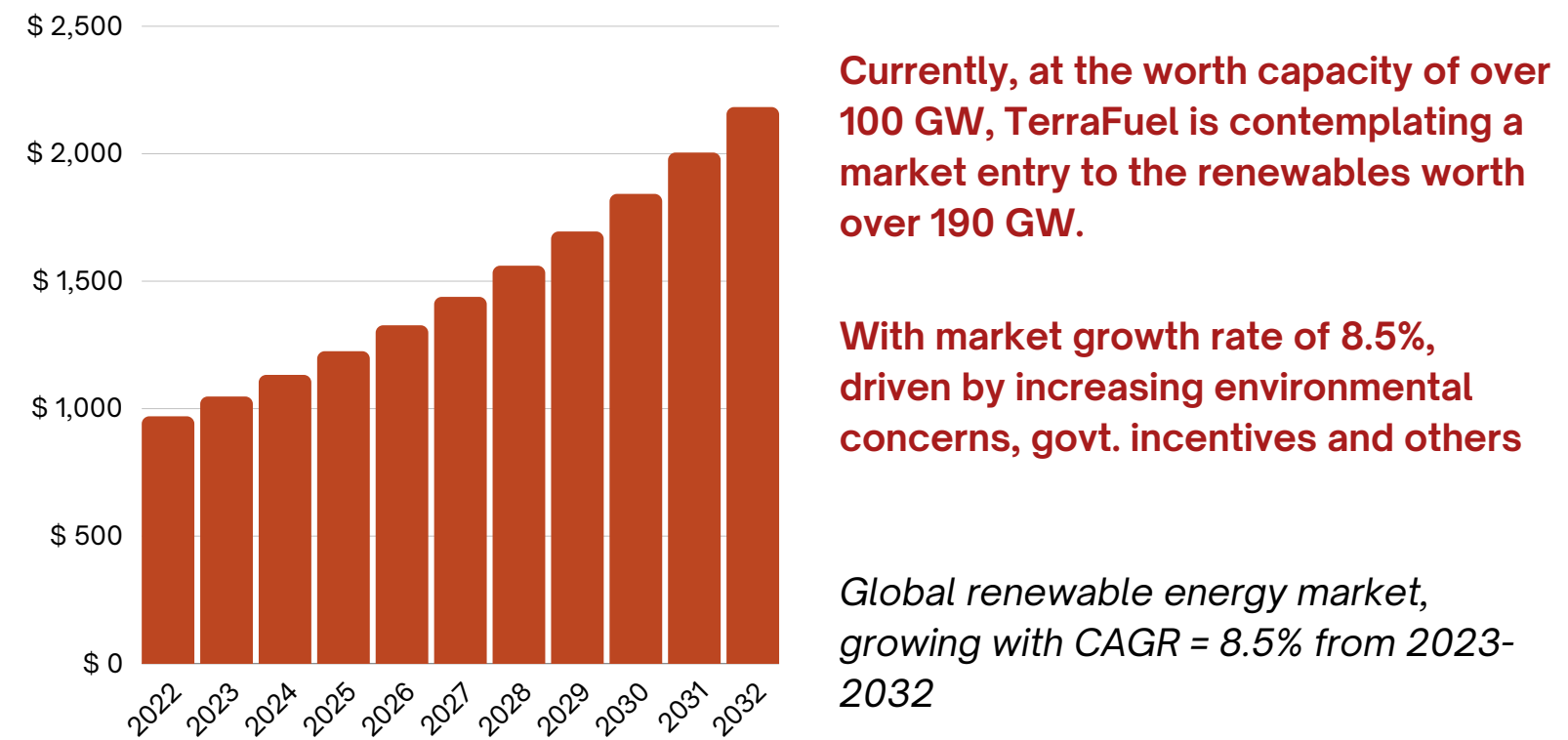
- Despite India, making progress in other renewable sources like solar, wind, etc. It has not made any significant improvement in the tidal, for the past 40 years
- Tidal power plants haven't been established in India due to high costs and environmental risks (fishes entering the lagoon and being struck by the blades- altered sedimentation processes and altered habitat.
- The Indian govt's Ministry of New and Renewable Energy (MNRE) said that "tidal and wave power is purely theoretical and does not necessarily constitute a practically exploitable potential."
- Therefore, it is advisable not to enter into the tidal wave market, due to low demand, high barriers of entry and low growth opportunities in the future
- **The tidal energy market has no significant growth opportunities, with high upfront costs and low demand, so entering it should be avoided.**

Slowly penetrate into the duopoly market

- After stable entry into the geothermal market through merger, and establishing itself in the distribution segment of the solar market.
- Leverage your recently established and pre-established network to slowly penetrate the large-scale solar market, competing directly with the two biggest giants in the industry
- With a small but significant presence in the market, TerraFuel will be more strong in breaking down the duopoly

Is TerraFuel financially capable of entering the renewable market?

- TerraFuel is anticipated to capture **40-60% of the market share in the distribution segment**, based on past real-world instances and assuming no other big player is serving the market currently
- However, it will be challenging to secure a good **share against the core business of duopoly**, in the initial stage at least, but considering the brand value of TerraFuel in the coal industry and with capital spending ability, we can expect to capture **5-10%** of the market
- The Total Addressable Market of TerraFuel currently is **107.33 GW**, which is **21.78%** of the total installed capacity in India.
- Since we are not aiming to enter the tidal energy market, even though it has not been explored much in India. But we advise acquiring a geothermal company, after analyzing its location, growth opportunities, etc.



Average profit margins in the solar market

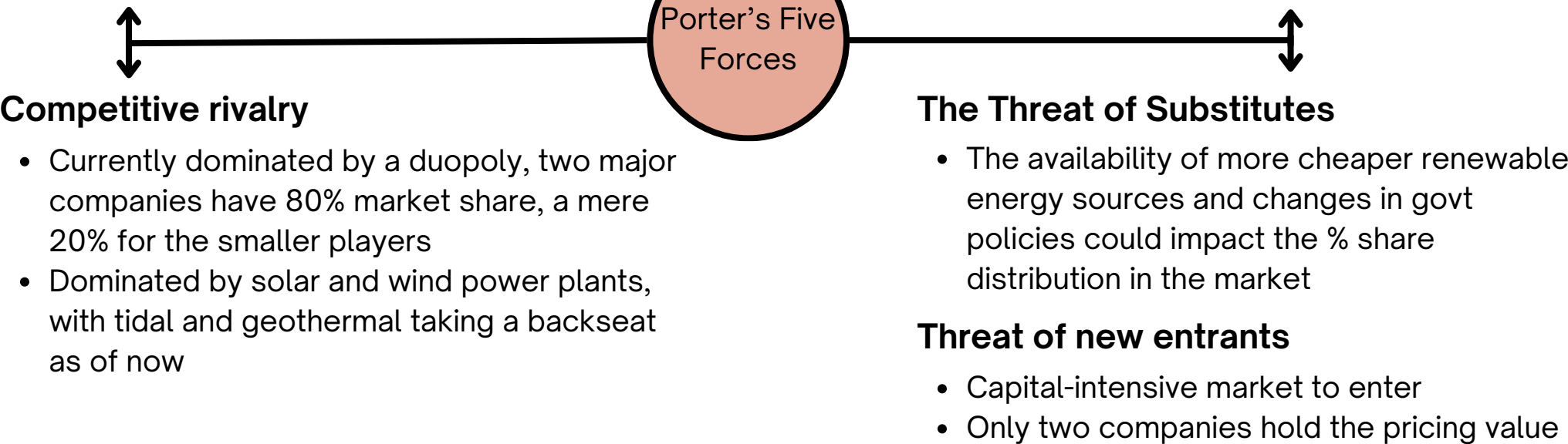
- Average solar business profit margin = **20-25%**
- Govt are encouraging people to install solar systems in their homes

Bargaining power of Suppliers

- Technologies like solar panels are standardized, making switching between suppliers easier
- Rapid innovation in the sector led to reduced dependence on specific suppliers

Buyer Power

- Duopoly companies will have high bargaining power
- Rest of the companies will have low bargaining power, little control over pricing and depends on big player’s decision



Break-even point and profitability

- *Information on the project's investment cost should have been provided in order to comment on its profitability and break-even point.*
- *Also, past revenue records are required to comment on whether the market is lucrative for TerraFuel or not.*

Merger Strategy

When merging with a company in the geothermal market, consider the following:

- Is the company profitable?
- Does it have any competitive advantage?
- Utilize revenue synergies to help you earn revenues, including accessing new distribution channels, cross-selling products, and up-selling products