

KAPACITOR

Kapacitor is an energy exchange where buyers get cheap energy and sellers charge high prices.

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A1

SUMMARY

The Kapacitor is a peer-to-peer (P2P) energy exchange platform that runs on the Public blockchain, which is secure, can't be changed, and is very reliable.

The KAP Token (0x612509Ff74bbd1f6CC86A435c981F4266B306c27) is a digital representation of energy. The owner of 1 KAP Token can trade it for 1 kWh of energy. The electricity provider will also get KAP in their wallet for energy supply.



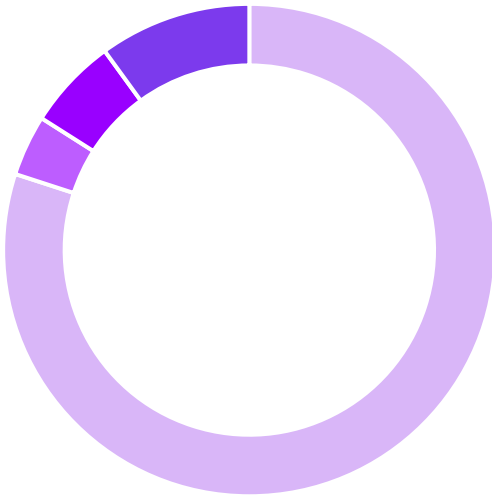
Users can use the web or mobile application to access the platform and perform energy exchange transactions.

KAP Token is exchanged for other assets on the Decentralized Exchange. Where such exchanges will increase or reduce energy prices based on the market's demand-supply at the time. This action will result in free energy trade. And there is no middleman in energy trade price determination.

In the Future, The Kapacitor platform will offer the utility in addition to selling electricity to the public or P2P.

And use the platform to collect energy to retain the customer base by allowing customers to deposit energy into the grid and withdraw energy to consume more conveniently at various places

Withdrawal transactions in the system generate the platform's revenue dependent on seller revenue or energy deposits into the system at a rate of 10 KAP per withdrawal transaction. Such platform revenue will compensate the developer and administrator, with the remainder given to KAP Token holders by proportionality.



- Energy Supplier
- Private Investor
- Public Investor
- Future utilization

KAP Token supply is limited to 6,000 million Tokens, sufficient for energy exchange within the system.

- 80% of the tokens has been allocated to energy suppliers at the rate of 1 kWh of supplied energy to 1 KAP.
- 4% of the tokens has been allocated to private investors
- 6% of the tokens has been allocated to public investors
- 10% of the tokens has been reserved for future utilization.



QUICK WIN

Power producers and people who require electric power, such as electric vehicles, can exchange energy anytime and anywhere.



FUTURE

1. The utility grid will receive energy deposits via the Kapacitor platform in the future.
2. Energy receiving points for prepaid electricity
3. Energy is exchanged between electric vehicles via the platform.



FOCUS GROUP

Thailand



B2

MARKET OPPORTUNITY

The industry of renewable energy has changed a lot. Grand View Research, Inc. reports that the global rooftop solar market will grow at a CAGR of 6.1% between 2027, which is expected to reach \$75.87 billion.

Demand for solar rooftop photovoltaic panels has grown because of significant price differences between retail tariffs and the cost of electricity from the sun. Besides that, Solar panels on roofs also don't cost much maintenance. It can be put up on any top and doesn't need any extra space.



In 2019, the Asia-Pacific region will produce the most solar power. There is a lot of growth, especially in places like Thailand, China, and India, which are still developing. The region also wants to rely less on fossil fuels like crude oil from other countries and more on renewable energy like solar power. To cut down on the costs of importing oil.

Thailand's fuel sources for making electricity come from different places, with 56.2% coming from natural gas. Most of the energy comes from oil, mainly from the Gulf of Thailand and Myanmar, and liquefied natural gas (LNG) that is brought in from other countries. About 43.8% of the energy comes from other sources. (Renewable energy and energy imported from other countries) and now, the amount of cheap natural gas from the Gulf of Thailand has continued to go down. Before, 70% of the electricity made in the Gulf of Thailand came from natural gas. That number dropped to 60% in 2022 and is likely to drop below 40% in 2032. Thailand's population has been growing steadily at an average rate of 0.7% per year. Because of this, the country has had to supply and import more liquefied natural gas. With the contract to meet domestic demand, Thailand will have to import more than half of its liquefied natural gas used to make electricity over the next 10 years.

Also, the reference price of liquefied natural gas brought in from other countries changes significantly. Aware of what's happening worldwide, the conflict between Russia and Ukraine has been going on since February.

Dutch TTF prices for natural gas on the European market recently hit a record high of 280 euros per megawatt, which is a 350% increase from 2021 and similar to how the baht has fluctuated in the past. Because of this, the price of natural gas used as a reference was much higher. Because of this, the average cost of electricity has been going up since the beginning of 2022. The electricity bill went up to 3.79 baht per unit from May to August and 4.72 baht per unit from September to December. There is a good chance that the electricity bill will reach 5 baht per unit shortly. Therefore, consumers will have to pay at least 20% more for electricity in 2023 than they did at the end of 2021.

Because of that, The price of electricity tends to keep going up, so business owners and other people install solar panels. To save money, the country's market for solar rooftops grows by an average of 22% per year and will reach 67 billion baht in 2025. (TTB Analytics). In the last 8 years, Solar equipment has gone down a lot, from 100 baht per watt in 2015 to 40–50 baht per watt in 2022, and it is likely to keep going down because of the development of more efficient ways to make electricity and economy of scale

Since 2013, the government has been buying electricity from solar rooftops as part of a plan to promote the purchase of electricity from renewable energy (Feed-in Tariff: FIT). The purchase rate of 2.20 baht per unit for 10 years has made this type of electricity more well-known in the public sector and reduced electricity costs. It also gives people a different way to make money.

Thailand is where it is easy to get energy from the sun because the average amount of solar radiation is high almost everywhere in Thailand. Especially in the central, northern, and northeastern parts, where the weather is hot and changeable.

Because of this, Thailand is ready to buy on the supply side. And supply that will help the market for solar roofs grow well in the next phase.

TTB analytics predicts that the sales of electric vehicles in Thailand will reach 6.36 thousand units in 2022, which is a 48 percent increase. Of these, 10,000 will be battery electric vehicles (BEV), which is a 539.7 percent increase. Compared to the same time in 2021, Recently, Thai government will release a plan to encourage Thailand to make more electric cars. Electric cars are becoming less popular because excise tax cuts and import tariffs for BEVs are used as subsidies. The decision of Eco car users, which has a sales volume of 200,000–300,000 units per year, makes it easier to switch to using a BEV car. As a result, the market is expected to expand significantly in the coming years.

Thailand currently has 35,000 BEV and PHEV vehicles on the road. However, most people who drive electric cars do so to get to work and have been parked for a long time. As a result, we see an opportunity to assist people who drive electric vehicles and solar power producers by matching electric car users can charge electricity at a lower cost than home or a public charging station for electric vehicles, Which is 1-3 times more expensive than conventional electricity, and solar power producers can increase their sales opportunities at a higher price than selling it to the grid by using Kapacitor Platform.

Demand and supply is the primary factor determining asset and energy prices.

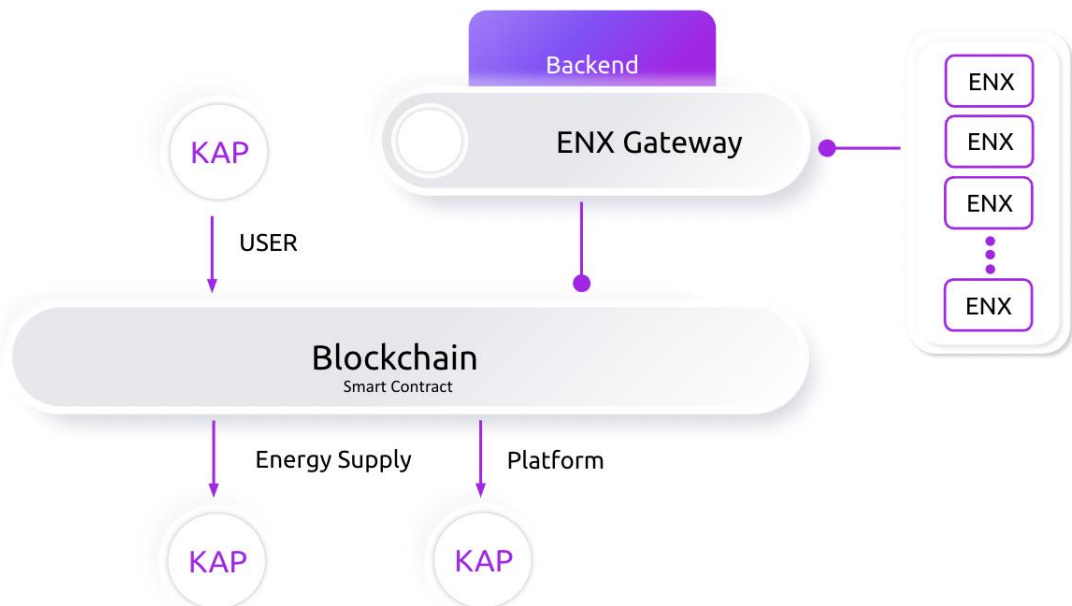


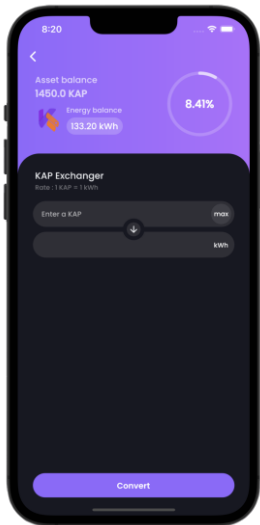
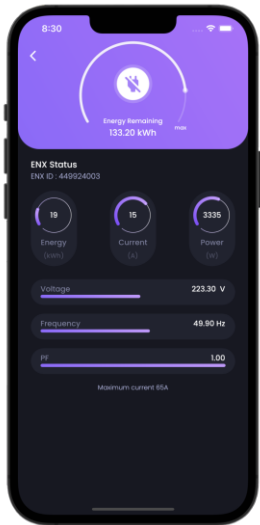
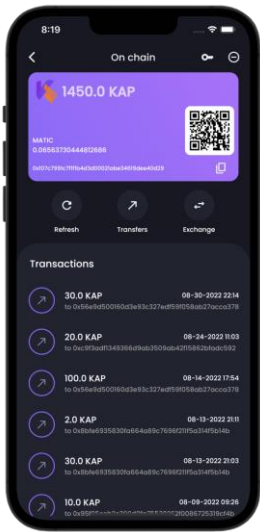
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HOW TO WORK

1. Individuals who require energy must have a KAP Token in their crypto wallet.
2. Transform KAP Tokens to energy (kWh) at a rate of 1 KAP for every 1 kWh, using Matic as a fee for the blockchain transaction.
3. The amount of kWh energy stored in the account of the person who uses that account can use Energy Exchanger to get power. The quantity of energy which transfers will be deducted from a wallet, and the kWh left over can be used later.
4. The energy provider can convert the energy supplied into KAP Tokens at the rate of 1 kWh : 1 KAP Token.
5. The KAP Token will be traded for other digital assets via the Decentralized Exchange.

Demand and supply is the primary factor determining asset and energy prices.





Mobile Application

It consists of a wallet and various functions used to exchange energy. Users can get started by creating a crypto wallet through the mobile application or importing a seed (12-words) from an existing crypto wallet.

Crypto wallet built-in

Digital assets exchanger

Energy Control and monitoring



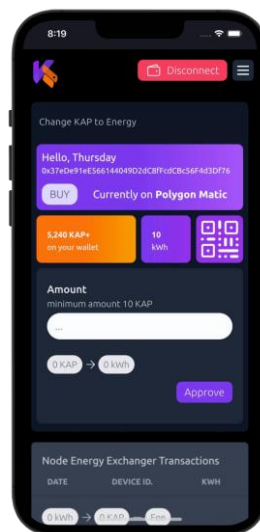
Web Application

<https://kapacitor.me>

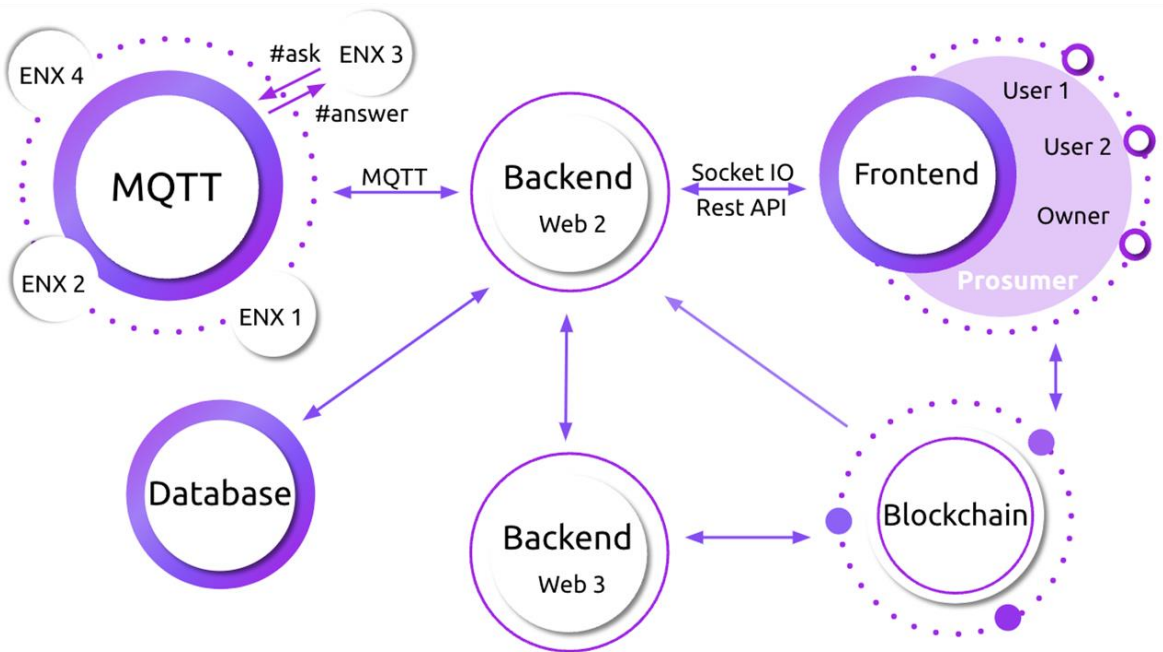
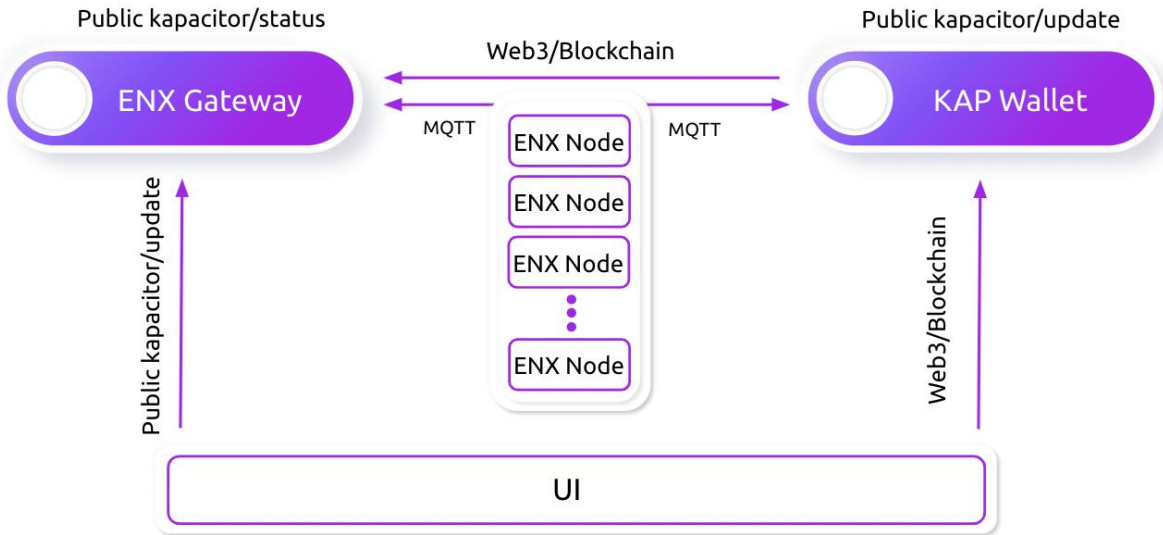
Users can access the Kapacitor platform through a Web3 browser such as opera mobile, MetaMask, or another browser with a wallet extension installed and make transactions for trading energy or checking the amount of KAP token, kWh, or another thing like a mobile application.

Connect wallet and Exchange

Energy Control and monitoring



Technical Diagram



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REVENUE MODEL

The primary income of the Kapacitor platform is divided into 3 main groups as follows :

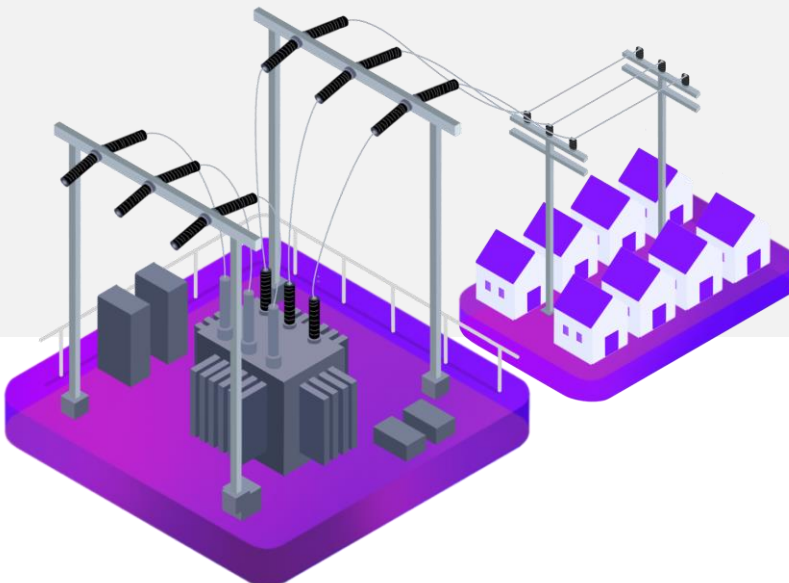
1. Platform Fee for energy exchanging (Phase 1)



2. Energy Selling from a solar rooftop (Phase 2)



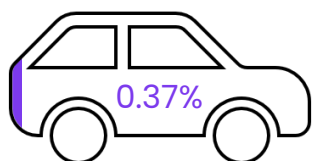
3. An energy deposit fee to the utility Grid (Phase 3)



1. Platform Fee for energy exchanging

Energy exchange fees paid by people who drive electric vehicles bring income. Based on the fact that there are 35,000 electric cars in Thailand, they go an average of 20,000 kilometers each year.

Based on the averages, an electric car uses 0.20 kWh/km per trip.



35,000
EV cars in Thailand



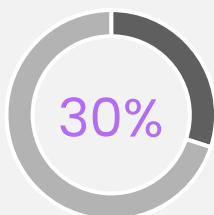
Average Distance
20,000 km/year



Energy Consumption
0.2 kWh/km

Unit (kWh) = Number of electric cars
x Energy Consumption
x Mileage per year
= 35,000 vehicle x 0.2 kWh/km
x 20,000 km/year
= 140,000,000 kWh/year

140,000,000
kWh/year



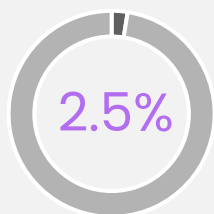
Market Share 30 %
(Early adopter)

Unit (kWh) 30% = 140,000,000 x 30%

42,000,000 kWh

Or Equivalent

42,000,000 KAP



Gross profit = 2.5% Revenue

2.5% x 42,000,000 KAP

1,050,000 KAP

Or Equivalent 1,050,000 KAP x 0.12 \$/KAP

126,000 \$

2028 growth at

Market size **\$111.90** billion

Report Coverage	Details
Forecast Period	2021-2028
Forecast Period 2021 to 2028 CAGR	30.26%
2028 Value Projection	USD 111.90 billion
Base Year	2020
Market Size in 2021	USD 17.59 billion

2. Energy Selling from a solar rooftop

In Thailand, the cost of a 5kW solar power system is between \$2,750 and \$3,250

On average, there are 5 hours of light and the system that makes electricity is 25 year

Electric generation for 5kW
 $5 \text{ kW} \times 5 \text{ hours} \times 365 \text{ days} \times 25 \text{ years}$
228,125 kWh / 25 years

Thailand's electricity bill is approximately \$0.12/kWh
The income for the production of 5 kW electricity
 $228,125 \text{ kWh} \times 0.12\$$
27,375 \$ / 25 years

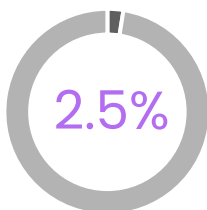
When costing installation for a 5 kW system at 2,750\$
Gross Profit = $27,375 - 2,750 \$$
24,625 \$ /5kW

The Investment target is 2,000 kW.
Gross Profit = $24,625 \times 2000/5 = 9,850,000 \$ / 25 \text{ years}$
394,000 \$ / year

3. An energy deposit fee to the utility Grid

According to the Alternative Energy Development Plan (AEDP), the goal for solar power production is 3,800 MW, of which 200 MW, or 200,000 kW, will come from rooftop solar power producers,

which will feed the system with electricity
 $= 200,000 \text{ kW} \times 5 \text{ hours} \times 365 \text{ days}$
 $= 365,000,000 \text{ kWh/year}$



Encourage participants to receive energy deposits through utility 5% Capacity

Deposit Fee = 2.5% of the energy = $365,000,000 \times 2.5\%$

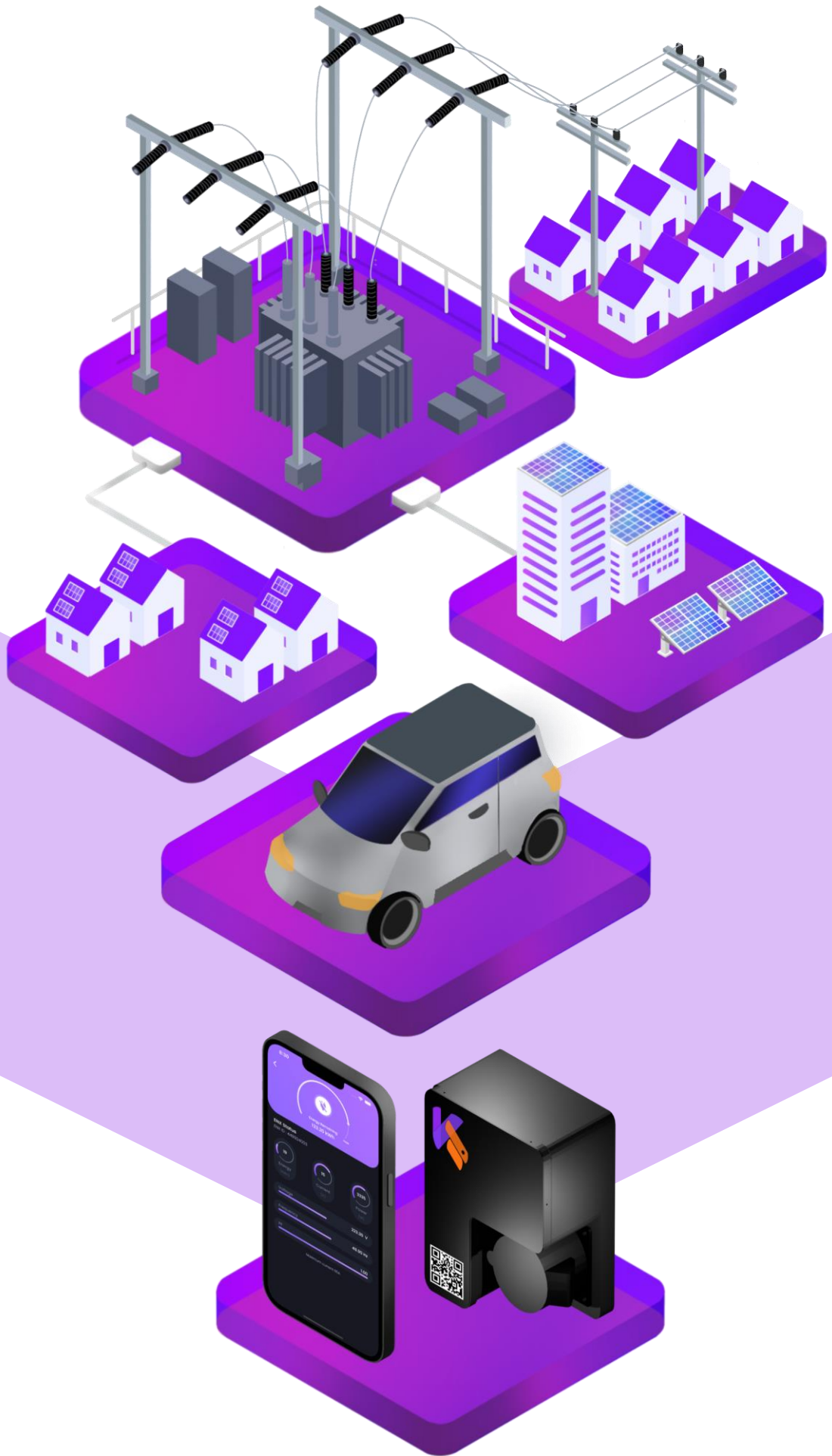
9,125,000 KAP

Or equivalent $9,125,000 \text{ KAP} \times \$0.12/\text{kWh}$

\$1,095,000

Operating profits in Thai baht or US Dollars will be used to buy KAP Token if the price is below 0.12\$.

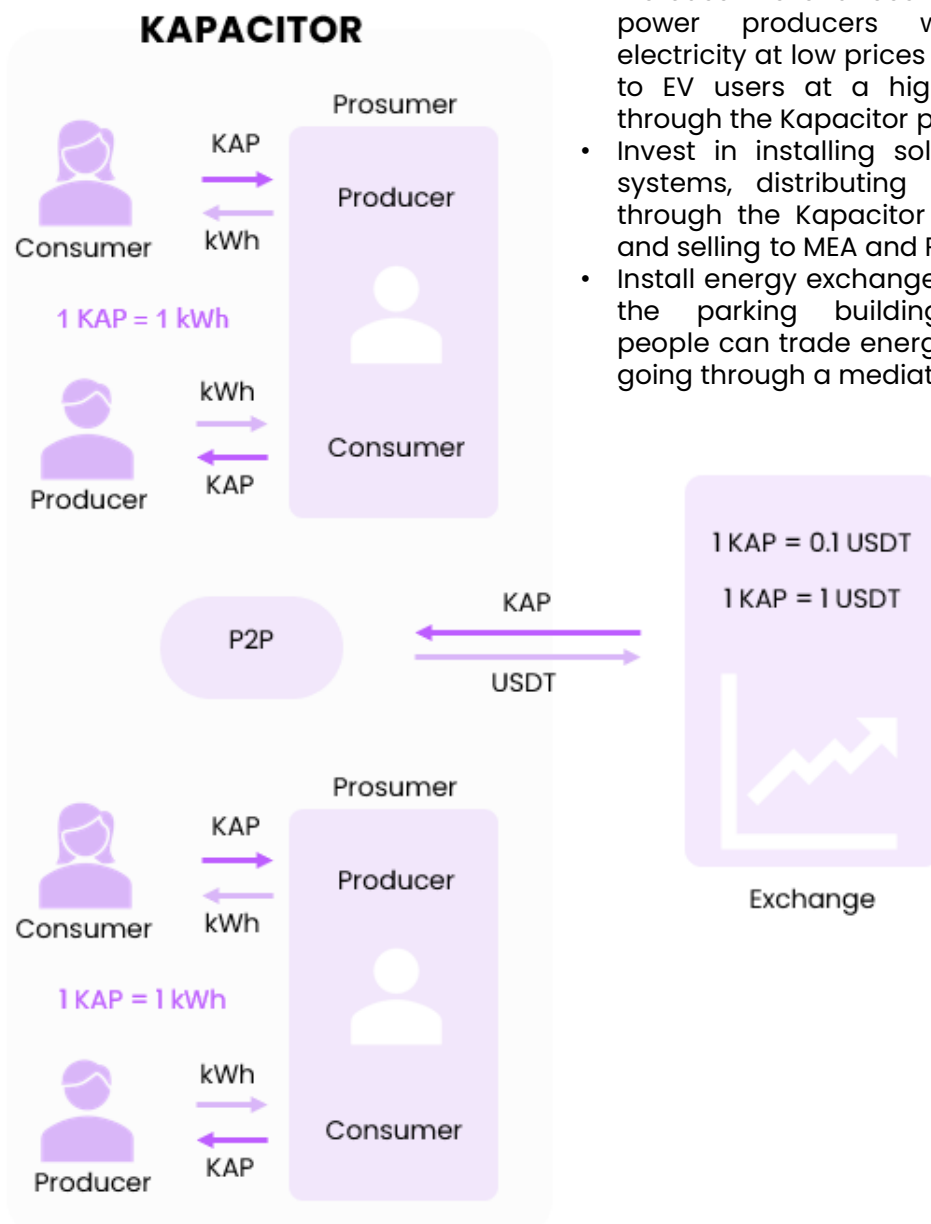
Or, if the KAP Token price is higher than \$0.12, Operating profits will convert to stable coins and pay back to holders' dividends in proportion to their stake.



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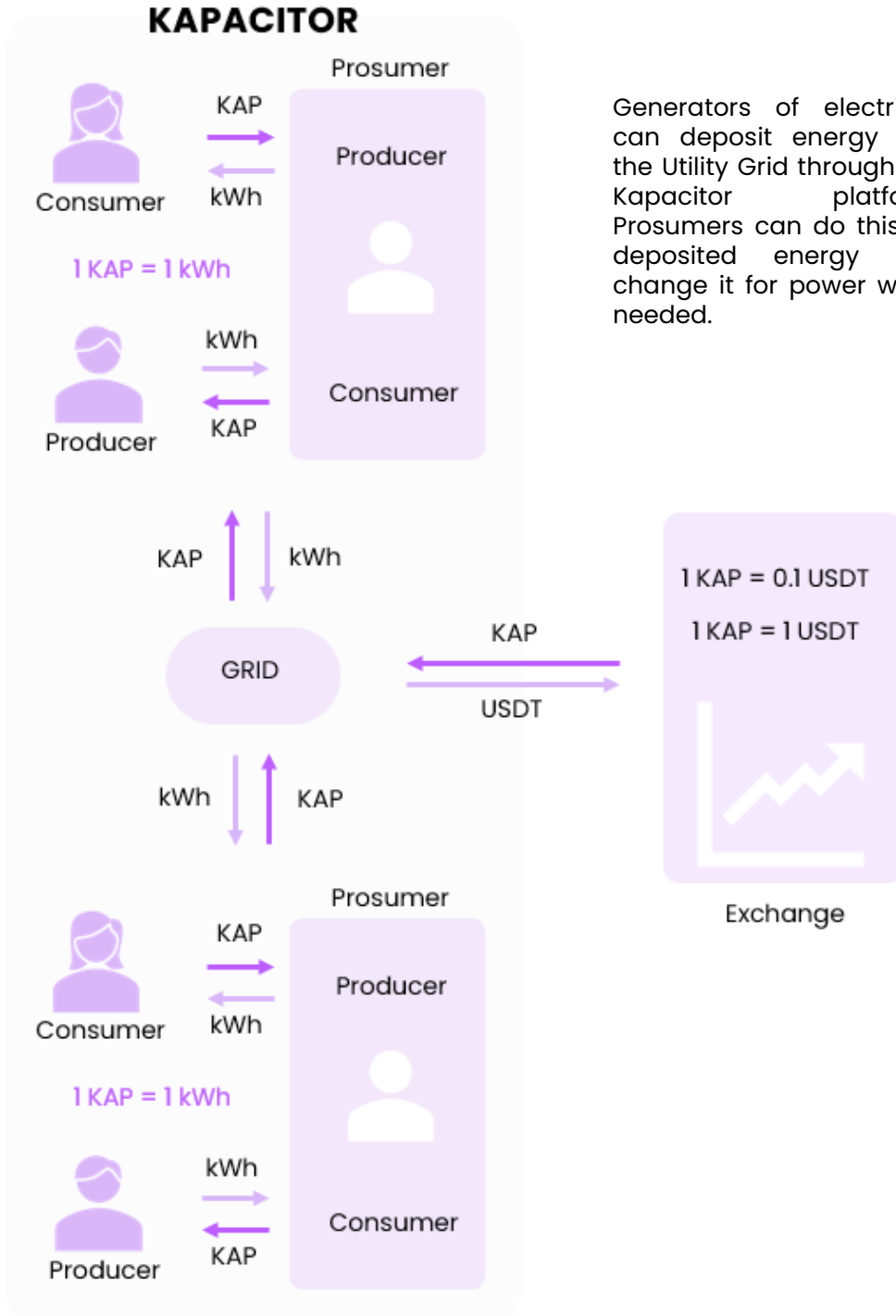
PLAN AND MILESTONES

1. P2P Energy Exchange



- Increase the chances that solar power producers who sell electricity at low prices can sell it to EV users at a higher price through the Kapacitor platform.
- Invest in installing solar power systems, distributing electricity through the Kapacitor platform, and selling to MEA and PEA.
- Install energy exchange points in the parking building where people can trade energy without going through a mediator.

2. Energy to Utility Grid Deposit



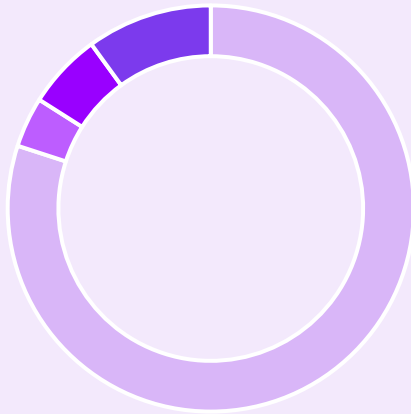
Generators of electricity can deposit energy into the Utility Grid through the Kapacitor platform. Prosumers can do this for deposited energy and change it for power when needed.

3. Green Energy Certificate

Certified for carbon credits by selling electricity through the Kapacitor platform, which allows energy suppliers to sell carbon credits.

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FUNDING AND TOKENOMIC



- Energy Supplier
- Private Investor
- Public Investor
- Future utilization

KAP Token supply is limited to 6,000 million Tokens, sufficient for energy exchange within the system.

- 80% of the tokens has been allocated to energy suppliers at the rate of 1 kWh of supplied energy to 1 KAP.
- 4% of the tokens has been allocated to private investors
- 6% of the tokens has been allocated to public investors
- 10% of the tokens has been reserved for future utilization.

After 10% of the KAP Token supply is sold to raise funds, the fund will be used in the following ways:

- To encourage and support the distribution of electricity through the Kapacitor platform, which will give solar power producers the ability to sell energy to electric vehicle owners through the Kapacitor platform.
- Invest in installing solar power systems and distributing electricity through the Kapacitor platform, MEA, and PEA.
- Install energy exchange points in the parking building where people can trade energy without going through a mediator.

The platform will use returns from operating income to buy the KAP token on the market and give it back to the Kapacitor holder. The Kapacitor holder can trade it for other assets or exchange it for electricity.

C7

KAPACITOR TEAM

The Kapacitor Team is a particular group. It is made up of specialists in a variety of sectors, such as the field of electrical engineering and computer engineering. We are a division of the Provincial Electricity Authority, searching for business partners in various industries, including the digital token exchange. Manufacturers and installers of solar equipment collaborate with us to facilitate energy trading using digital tokens across all 73 provinces of Thailand and beyond.

The Provincial Electricity Authority (PEA) is a government enterprise under the Ministry of Interior. PEA was founded as an individual organization under the Royal Decree issued on 6 March 1954 and announced in the Royal Thai Government Gazette on 16 March 1954. The Board of Directors was appointed to control and manage the Department of Public and Municipal Works, Ministry of Interior, and the government, with the Minister of Interior holding a general governing authority. Provincial Electricity Organization has a legal capital of 5 million Baht with 117 electricity authorities under its purview. Subsequently, the Provincial Electricity Authority was established under the Provincial Electricity Authority Act of B.E. 2503 (1960) on 28 September 1960 and inherited ongoing missions from the Provincial Electricity Organization.

Road to PEA Digital Utility

The Provincial Electricity Authority transforms the organization into PEA Digital Utility. Management and Organization Development Guidelines are carried out under the KEEN14 Policy: "Keep Improving Existing Business, Enhance New Business, Employ Innovation and Technology, and Nourish Human Resource."

The critical compliance consists of 14 strategic practices covering essential operations in each department, including organization and grid system development, new business development, innovation and digital technology, human resource development under Good Corporate Governance, and sustainability built to fulfill customers' and market requirements, ready to move towards the Digital Utility era.

The PEA is opening a new chapter of challenges associated with changes in technology and government policy that significantly impact the industrial electricity structure. PEA is committed to adopting these changes by evolving into an electricity business aiming to be excellent in the Electrical Energy Business, meet the expectations of the customers, and contribute values to society and the environment by using digital technology to take PEA down the road to becoming "PEA Digital Utility."

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