

易乐电 ELECTRIFY

BE THE POWER

ICO 白皮书 版本 1.8



ELECTRIFY.ASIA

摘要

亚洲，一个拥有44亿人口（60%的世界总人口）的地区，近年来成为了经济增长最快速的区域。亚洲大多数的人口居住于城市，而这些城市的电源都由中央电网系统供电。日本的电力市场已在2016年全面开放，而中国的部分城市也相继效仿。新加坡则将成为东南亚首个全面开放电力市场的国家。越来越多的市场都相继全面开放电力市场，这让许多消费者在电力零售商的选择，甚至电力的消费方式方面，都有了更多的选择。

亚洲的年度能源消费预计在2035年从7千亿美元增长到1.6万亿美元。

来源：亚洲开发银行

即使在开放的电力市场环境中，消费者仍然从电网运营商管理的集中式电网购买电力。但是分布式能源如：太阳能光伏装置，生物质能，风能，电池甚至嵌入式电力网络的需求也正在快速增长着。

可是，集中式网格落后于提供创新、对等能源模式，以及涉及替代能源的解决方案。在缺乏的情况下，消费者没有得到应有的选择。

ELECTRIFY（易乐电）致力于改变目前的现象：通过受区块链保护的简单智能合约带给消费者选择的权利。

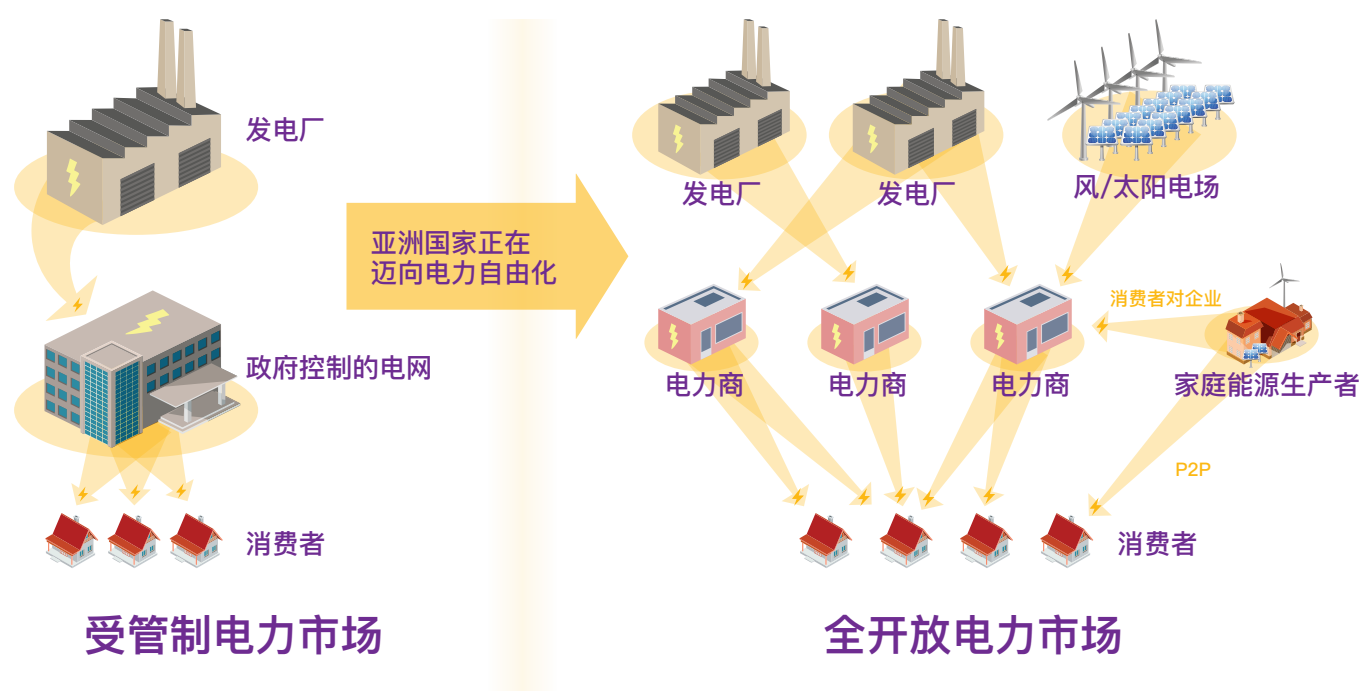
ELEC 代币将会在加密货币交易所进行交易，并且推动易乐电的经济与生态系统。我们不只是幻想，更是在打造一个更好的电网。而这一切都始于智能能源生态系统。

内容

电力市场结构	1
现有的企业	2
易乐电的生态系统	3
易乐电交易所 2.0	4
协合台	5
能源荚和电子钱包	6
机遇	7
路线图	8
代币	9
创始人	12
顾问	13
免责声明	14

电力市场结构

受管制对全开放电力市场



目前市场的问题



缺乏透明度

电力合约之间缺乏透明度意味着客户可能并不总是清楚他们所支付的电力价格，又或者发现自己受到不良利率或条件的影响而产生不必要的损失。对于购买可再生能源而言，消费者也没有办法知道自己所购买的电力是否真正来自于绿色能源，因为在缺少不可变更的账本的情况下，消费者是无法验证能源的发电来源的。



清洁能源采用的阻碍

在现有的集中式电网基础设施中，小型发电厂和消费者缺乏一个标准的框架来使之进行可靠的交易。这使得利益相关者难以购买或出售由太阳能光伏等可再生能源所生产的剩余电力。小产量产销合一者只能将剩余的电力以批发价格出售给网格。而大多数产销合一者都会因批发市场的价格波动和其它隐患而不敢参与其中。



消费者的信用风险

小群客户的欠费是能源供应商常常共同面对的一个问题。在没有去一个中心化的“无信任”信用数据库和支付平台的情况下，零售商无法过滤掉那些不良信用客户。为了弥补由这一小群客户所造成的损失以及维持追踪和恢复坏账的高成本，因此造成了所有消费者的能源价格上涨。

现有的企业

电力零售市场

由两名从事于新加坡电力行业的高管人员创立，易乐电是东南亚第一个电力零售市场，它解决了消费者对电力市场透明度和安全性的需求。自2017年3月以来，我们的总商品额已超过5百万新币，而仅仅工商业用户的电量交易就超过了30亿千瓦时。

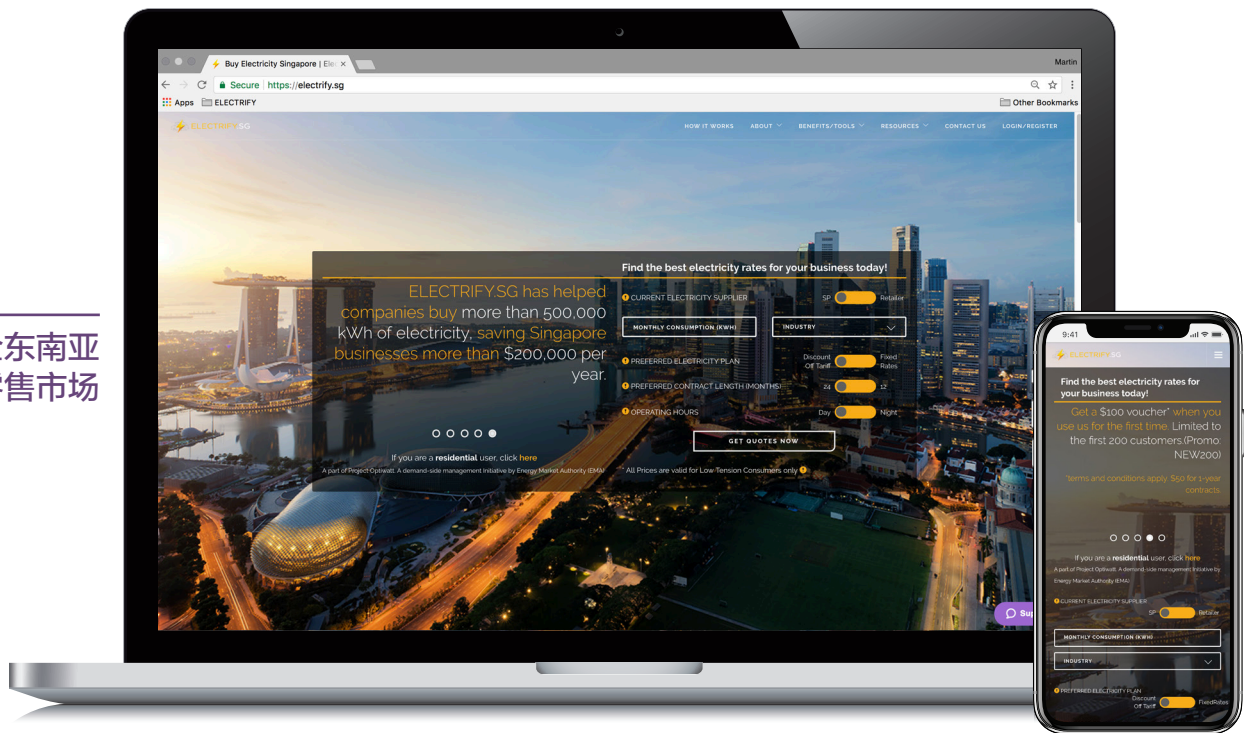
传统电力合同程序



易乐电



易乐电是全东南亚
首个电子零售市场



易乐电的生态系统

易乐电将通过我们的价格搜寻平台（交易所2.0）和能源交易平台（协合台）的优化来为所有的利益相关者带来更高的透明度与价值。交易所2.0将通过无可信赖的分销账户成为零售电力计划和支付的创建，执行和交易的基础。这种以块为基础的能源生态系统为零售商和消费者带来了好处。

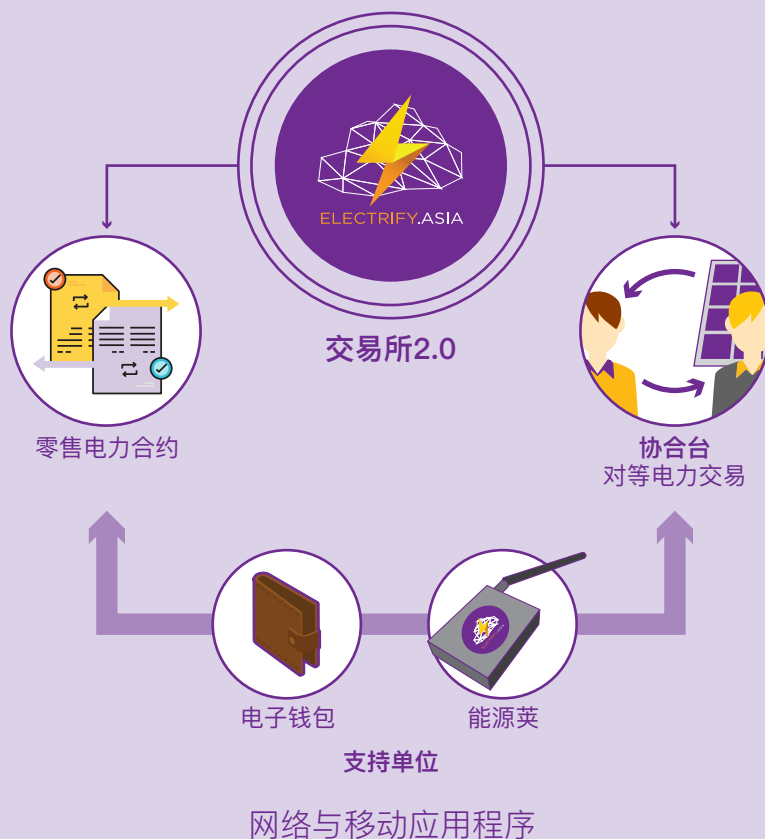
我们会把现有的易乐电交易所升级为易乐电交易所2.0，并且通过我们发行的ELEC代币来结算。当亚洲各国家在为市场全面开放化做准备时，易乐电交易所2.0会加强它的价格搜寻平台，可让每个家家户户容易找寻一个符合他们需求的电力配套。

协合台是个对等（P2P）能源交易平台，而会通过交易所2.0的平台操作。协合台会让小型发电厂商与消费者自由交易，也同时能确保价格的确定性和消除中间商。我们相信协合台会以对等平台扩大易乐电的生态系统而从中协助易乐电进军海外市场。

现有的企业



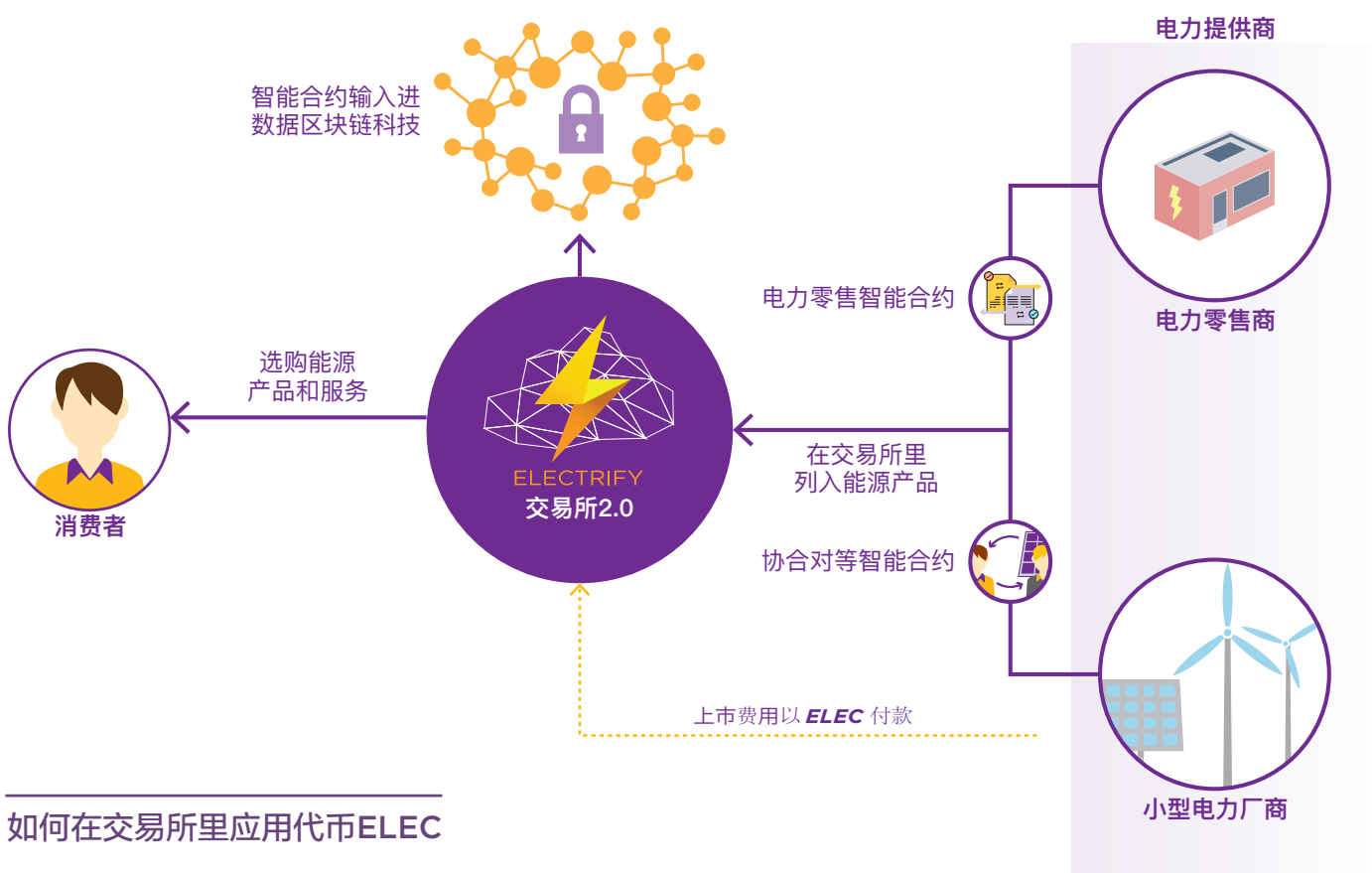
易乐电生态系统



易乐电交易所 2.0

能源市场的智能合约

易乐电全新的交易所2.0将在互联网和移动平台推出，好让消费者随时随地都能够享用易乐电的服务。除此之外，这个平台能使消费者和零售商或对等的电力商交易，除掉中间商的程序。通过智能合约和数据区块链科技我们将为零售商和消费者带来以下利益。



如何在交易所里应用代币ELEC

协合台

对等电力交易平台

协合台 (Synergy) 能让消费者从小型发电厂商，比如住宅屋顶太阳能和风力涡轮机，购买电力。

协合台也消除了中间商，并且为消费者减低电费。

我们的对等交易平台会采用差价合同 (CfD) 计算机制。

除了微电网，差价合同的平台能使协合台进军其他海外市场以及其他外国先进的电网。

参与者

买方

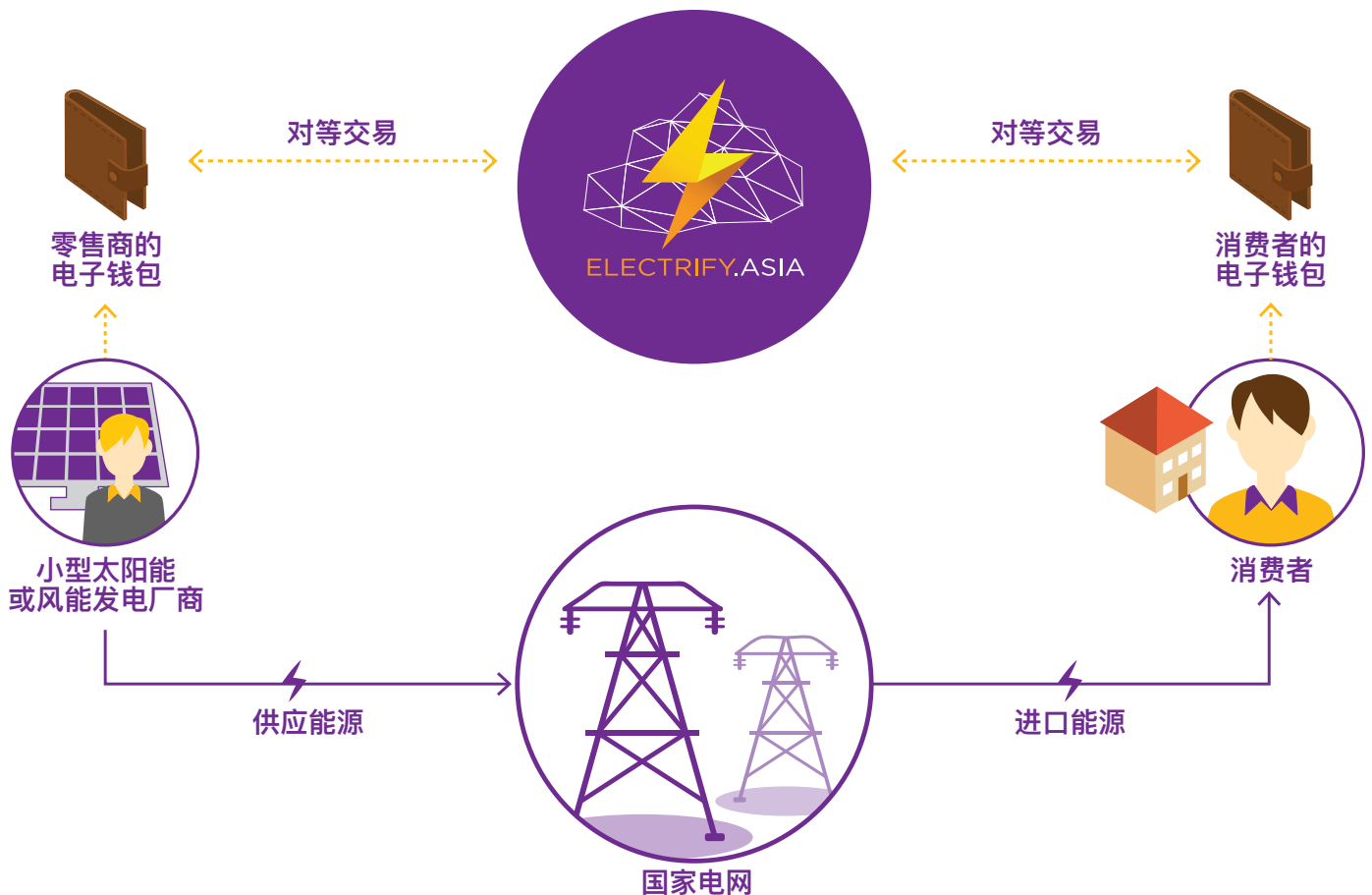
住宅消费者，电力零售商，跨国公司，中小企业

卖方

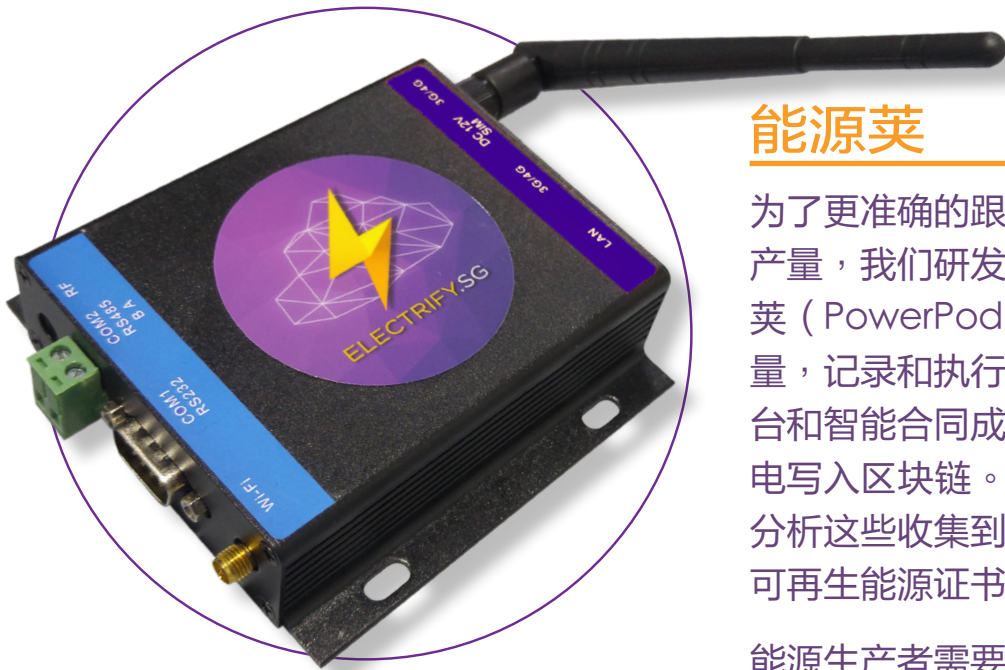
可再生能源资产拥有者，小型企业和住宅能源生产者 (工厂，货仓，住家)，电动汽车与蓄电池

其他

电网运营商，第三方核数员，商品交易商，风险管理团队



能源荚和电子钱包



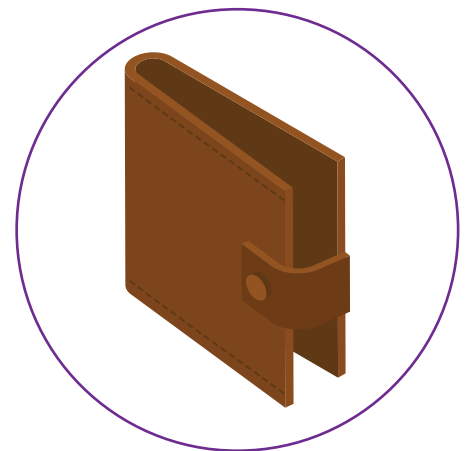
能源荚

为了更准确的跟踪和审计小型发电厂的电产量，我们研发了一款智能仪器名为能源荚（PowerPod）。它会通过物联网来测量，记录和执行所产出的电，最后以协合台和智能合同成交。能源荚也会把产生的电写入区块链。之后，相关的认证机构会分析这些收集到的数据，再把国际认可的可再生能源证书发给电厂商。

能源生产者需要付至少200 ELEC/kWp的保证金才能许可把能源数据写入区块链上。这不尽能鼓励长期拥有，也会抑制欺诈行为。

电子钱包

通过电子钱包（eWallet），消费者能够利用这项服务来助于智能合约的交易结算和支付电费。这样一来，消费者不不仅可以享用自动和安全的交易支付，电力零售商也可以更好地管理客户的信用风险，得到双赢的局面。在交易所2.0和协合台上，我们都会应用电子钱包进行所有的汇款交易。



机遇

新加坡 — 拥有540万总人口与49太瓦时的年度耗电量 — 是东南亚首个全面开放的市场。因此新加坡电力市场会给易乐电自造一个很好的试验台，来测试易乐电平台的可行度。除了新加坡，亚洲的几个新市场也将逐步放松对能源市场的管制。通过我们的交易和对等平台，易乐电将带给消费者更多裨益。

“从现在到2040年之间，全球
电力需求量将增长58%。”

(亚洲开发银行)

日本
934 TWh
US\$74.72bn

中国
5,920 TWh
US\$473.6bn

全年用电量
(2016年，估计量)

泰国
164 TWh
US\$13.12bn

越南
125 TWh
US\$10bn

菲律宾
103.3 TWh
US\$8.264bn

马来西亚
131 TWh
US\$10.48bn

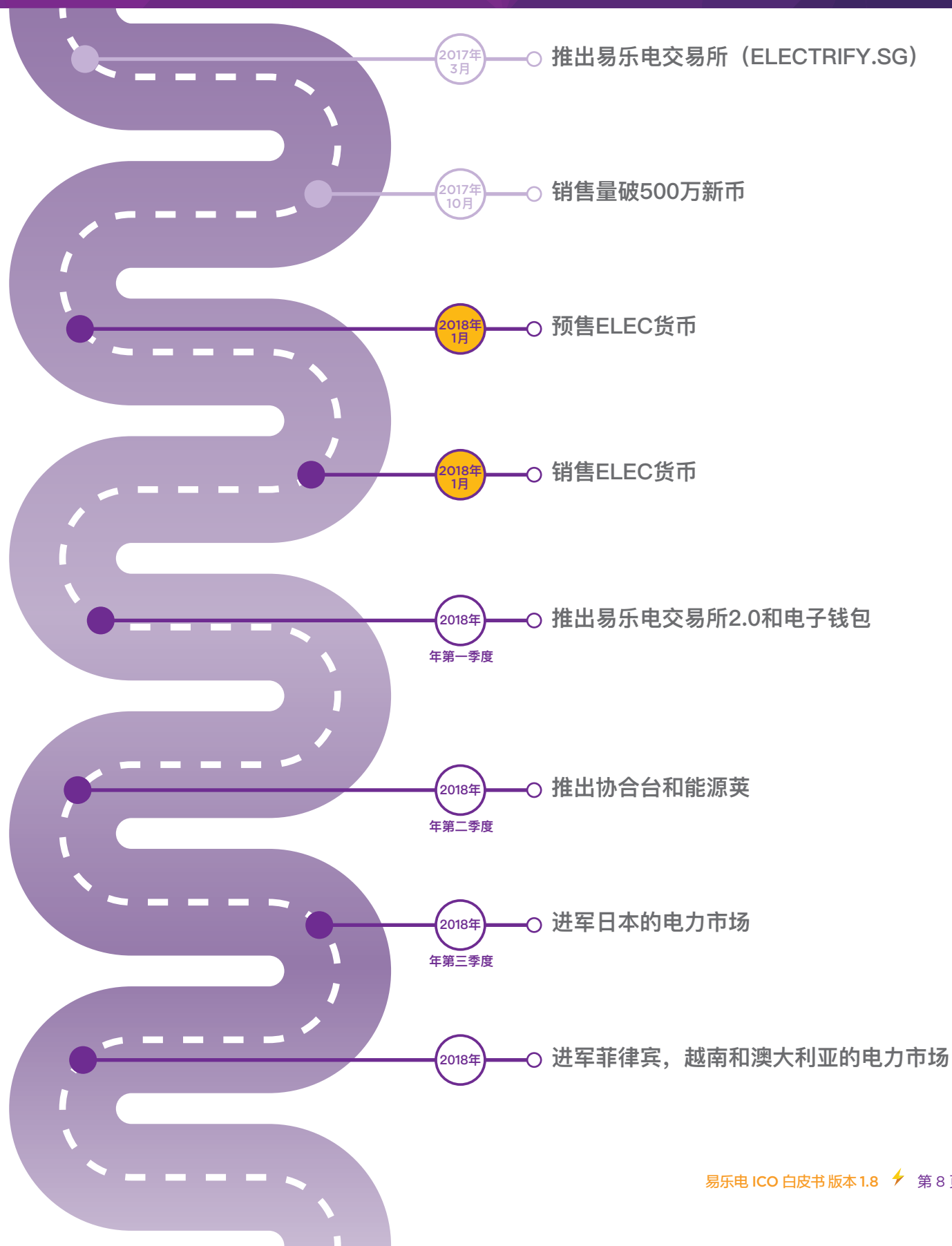
新加坡
49 TWh
US\$3.92bn

印度尼西亚
191 TWh
US\$15.28bn

“中国和印度的总电力市场就占有4万亿美金的生意良机。此外，在2017至2040之间，中国的投资量将占据28%区域电力的总投资，而印度会占据11%。太阳能和风能发电厂则会收到三分之一的总投资。”

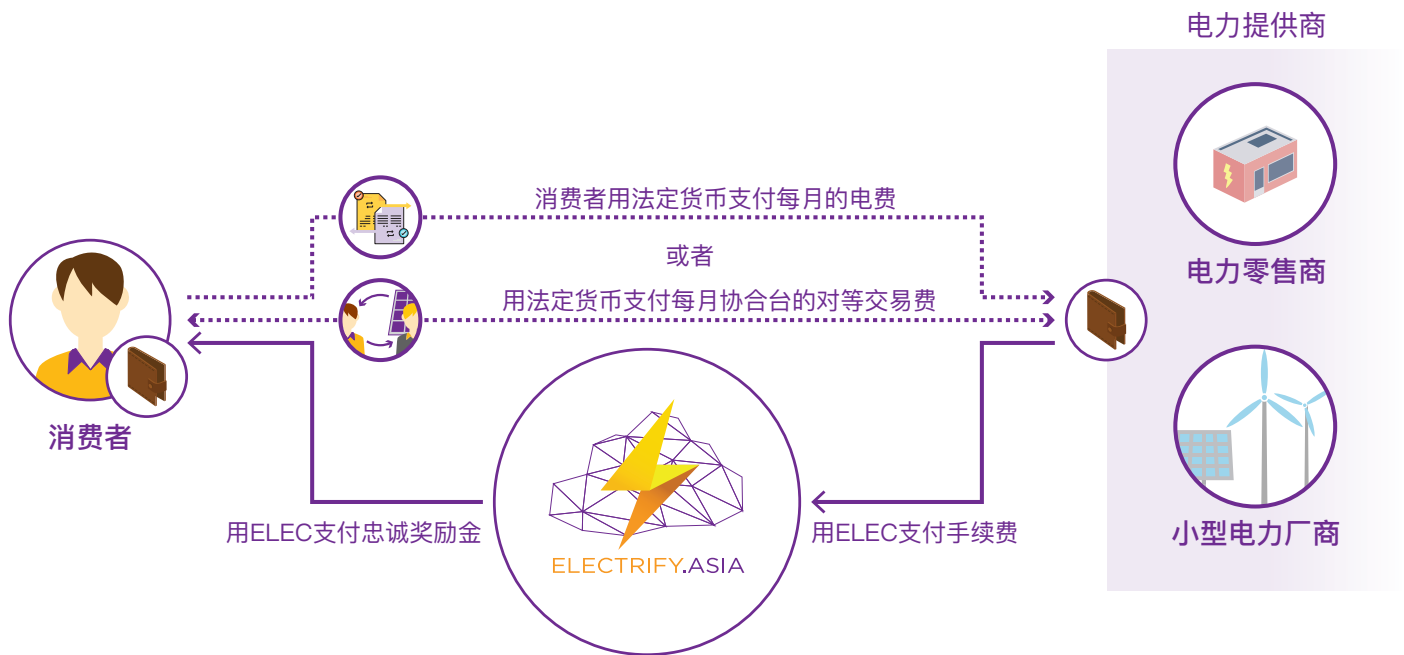
New Energy Outlook 2017
BLOOMBERG

路线图



代币

如何使用代币



ELEC 易乐电代币

ELEC 将在 ICO 后分发，并将用于易乐电的生态系统。

ELEC 使用案例

- 帮助用户参与易乐电的生态系统
- 零售商用于支付电力交易的手续费
- 消费者的忠诚奖励金



兑换率将在众售期之前公布

代币

代币出售

众售详情	
Hard Cap	300万美金
日期	23/02/18 至 01/03/18
可接受的货币	只限 ETH
ELEC对美金的兑换率	1 ELEC = 0.08 美金
代币供应量	总代币的供应量：750,000,000 ELEC ICO 发行的代币：375,000,000 ELEC
最高投资数量	以依照白名单的人数而定

所筹到的代币将影响易乐电的产品开发和开拓海外市场。请参考以下的表格。

Hard Cap 的比例	开发的产品	地区
高达 60% - 1800 万美金	交易所 2.0 + 协和台 + 电子钱包	新加坡
80% - 2400 万美金	以上产品 + 能源荚	以上国家 + 日本
100% - 3000 万美金	以上产品	以上国家 + 菲律宾 + 澳大利亚

代币发行

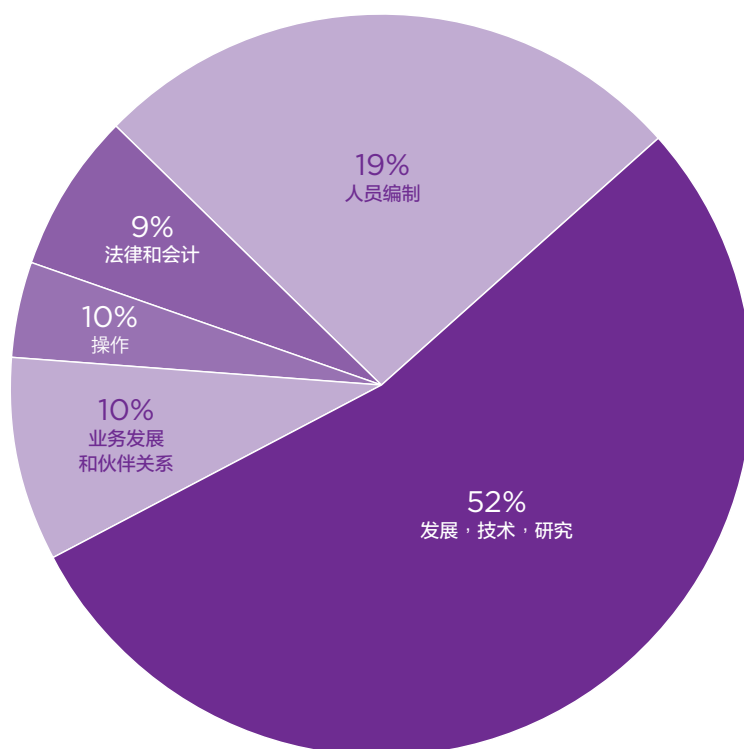
ELEC代币会在众售后的2周内分发。在这2周里，我们的团队会收集与确认全部的代币交易，之后再生产和分发给预购者。

代币

代币分布

- A. 50% ICO发行
- B. 18.4% 团队
授予期: 每6个月提供50% ELEC代币
- C. 9% 顾问和合作伙伴
- D. 18.5% 公库和社团发展
 - 6.1% 投入发展与小型能源产商和消费者
 - 11.2% 储备
 - 1.2% 投入研究及发展区块链项目
- E. 4.1% 空投与易乐电社团

代币用途



创始人

JULIUS TAN 陈志豪 执行总监

志豪的事业生涯始于新加坡国立大学的太阳能研究工程师，此后他在一家电力商担任电力商及能源部主管。带领着易乐电的团队，JULIUS朝着进军亚洲的目标地建立区块链与人工智能，使消费者和零售商能够轻便地进行交易。

志豪拥有剑桥大学的工程学士和硕士学位。他也在其他著名的公司比如新加坡经济发展局（CLEANTECH）、渣打银行（全球交易业务），和斯伦贝谢（油田工程）。

MARTIN LIM 林文光 运营总监

文光在大众传播行业拥有超过20年的经验，曾为中小企业和跨国公司的各种客户提供创意和战略指导。过去十年累计的经历提供了大量的初创公司及区域业务发展的体验。因他对能源和水的兴趣，文光后来共同成立了一家公司，开发为灾难援助的用水处理系统。之后，他也在一家电力商担任企业发展经理。

文光主管易乐电的营销与综合业务拓展。他也不断地寻找与不同利益相关者（比如零售商和消费者）的良机，以融入他们进易乐电的生态系统。

顾问

JUN HASEGAWA

开发区块链和支付科技

Current: Founder and CEO of Omise & OmiseGO

Prior to founding Omise, Jun was involved in founding a series of tech companies in Japan, primarily in the fields of e-commerce, life-logging, mobile payment, and payment infrastructure.

Jun currently leads an international team of engineers and business personnel in countries across Asia, and is gearing up for the company's expansions in Southeast Asia. He is passionate about making online payments available to the masses.

DR. LICHENG LIU

日本电力市场、大型电站级的太阳能项目开发

Current: O&M Manager at Saferay Pte Ltd (Global solar developer)

Previous: Deputy Head, National Solarisation Centre (SERIS), PhD (Advanced Photovoltaics, NUS), Engineering Science (Osaka University)

FOO MING QING

网络安全和电力系统建模

Current: Software Engineer at ST Electronics (Info-Comm Systems)

Previous: MSc Computation for Design and Optimisation (MIT), BA Electrical and Information Sciences (University of Cambridge), National Taiwan University Imperial College London

Relevant publications:

[*Robust and resilient estimation for cyber-physical systems under adversarial attacks.*](#)

[*Distributed Feasibility Algorithms with Application to Power Flow Problems.*](#)

SHIRLEY WONG

成长型策略和伙伴关系

Current: Managing Partner at TNF Ventures, Board member of IMDA, Co-chairman of the Cyber Security Awareness Alliance, Vice Chairman of South Asia Business Group, Member of Temasek Polytechnic's IT School Advisory Council and an Entrepreneur-in-Residence at Singapore Management University.

Previous: Chairman (SITF), Co-founder (Frontline Technologies, acquired by BT)

DR. YANG DAZHI

中国、机器语言、人工智能、数据科学，太阳统计预报

Current: Research Scientist (A*STAR)

Previous: PhD at National University of Singapore

Interests: Geometrical transformation, kriging and model output statistics, sensor network-based forecasting utilising spatial-temporal correlations, urban to continental scale solar irradiance monitoring networks. Research in both structured and unstructured data mining and machine learning.

NIZAM ISMAIL

法律顾问

Current: Co-Founder of RHT Compliance Solutions, Partner and Head of Regulatory Practice of RHTLaw Taylor Wessing, Head of Regulatory Sub-Committee of the Association of Cryptocurrency Enterprises and Startups Singapore (ACCESS)

Previous: Former Executive Director and Head of Compliance for Southeast Asia at Morgan Stanley, Former Deputy Director, Market Conduct Policy Division at Monetary Authority of Singapore (MAS)

免责声明

IMPORTANT NOTICES

The ELEC tokens are not securities as defined under Singapore's Securities and Futures Act (Cap. 289) ("SFA"). Accordingly, the SFA does not apply to the issuance of the ELEC tokens. For the avoidance of doubt, the offering of ELEC tokens need not be accompanied by any prospectus or profile statement and no prospectus or profile statement needs to be lodged with the Monetary Authority of Singapore ("MAS").

This White Paper does not constitute an offer of, or an invitation to purchase, the ELEC tokens in any jurisdiction in which such offer or sale would be unlawful. No regulatory authority in Singapore, including the MAS, has reviewed or approved or disapproved of the ELEC tokens or this White Paper. This White Paper and any part hereof may not be distributed or otherwise disseminated in any jurisdiction where offering tokens in the manner set out in this White Paper is regulated or prohibited.

The information in this White Paper is current only as of the date on the cover hereof. For any time after the cover date of this White Paper, the information, including information concerning Electrify's business operations and financial condition may have changed. Neither the delivery of this White Paper nor any sale made in the related token offering shall, under any circumstances, constitute a representation that no such changes have occurred. Electrify does not make or purport to make, and hereby disclaims, any representation, warranty, undertaking, or other assurance in any form whatsoever to any person, including any representations, warranties, undertakings, or other assurances in relation to the truth, accuracy, or completeness of any part of the information in this White Paper.

Whether taken as a whole or read in part, this White Paper is not, and should not be regarded as, any form of legal, financial, tax, or other professional advice. You should seek independent professional advice before making your own decision as to whether or not to receive any ELEC tokens. You are responsible for any and all evaluations, assessments, and decisions you make in relation to investing in the ELEC tokens. You may request for additional information from Electrify in relation to this offer of the ELEC tokens. Electrify may, but is not obliged to, disclose such information depending on whether (i) it is legal to do so and (ii) the requested information is reasonably necessary to verify the information contained in this White Paper.

Electrify is not responsible for compelling any person to accept ELEC tokens and disclaims, to the fullest extent permitted by law, all liability for any adverse consequences arising out of or in relation to such rejections of the ELEC tokens.

Upon receiving any ELEC tokens, you will be deemed to have reviewed this White Paper (and any information requested and obtained from Electrify) in full and to have agreed to the terms of this offering of the ELEC tokens, including to the fact that this offering does not fall within the scope of any securities laws in Singapore and is not regulated by the MAS. You further acknowledge and agree that the ELEC tokens are not securities and are not meant to generate any form of investment return.

The ELEC tokens and related services provided by Electrify (if any) are provided on an "as is" and "as available" basis. Electrify does not grant any warranties or make any representation, express or implied or otherwise, as to the accessibility, quality, suitability, accuracy, adequacy, or completeness of the ELEC tokens or any related services provided by Electrify, and expressly disclaims any liability for errors, delays, or omissions in, or for any action taken in reliance on, the ELEC tokens and related services provided by Electrify. No warranty, including the warranties of non-infringement of third party rights, title, merchantability, satisfactory quality, or fitness for a particular purpose, is given in conjunction with the ELEC tokens and any related services provided by Electrify.

RISK FACTORS

REGULATORY RISKS

The regulation of tokens such as the ELEC tokens is still in a very nascent stage of development in Singapore. A high degree of uncertainty as to how tokens and token-related activities are to be treated exists. The applicable legal and regulatory framework may change subsequent to the date of issuance of this White Paper. Such change may be very rapid and it is not possible to anticipate with any degree of certainty the nature of such regulatory evolution. Electrify does not, in any way, represent that the regulatory status of the ELEC tokens will remain unaffected by any regulatory changes that arise at any point in time before, during, and after this offering.

NO REGULATORY SUPERVISION

None of Electrify or its affiliates is currently regulated or subject to the supervision of any regulatory body in Singapore. In particular, Electrify and its affiliates are not registered with MAS in Singapore as any type of regulated financial institution or financial advisor and are not subject to the standards imposed upon such persons under the Securities and Futures Act, Financial Advisors Act, and other related regulatory instruments. Such persons are required to comply with a variety of requirements and standards concerning disclosures, reporting, compliance, and conduct of their operations for purposes of maximising investor protections. Since Electrify is not subject to such requirements or standards, it will make decisions on those issues at its own discretion. While Electrify will have regard to best practices on these issues, holders of ELEC tokens may not necessarily enjoy the same extent and degree of investor protections as would be the case should they invest with regulated entities instead.

NO FIDUCIARY DUTIES OWED

As Electrify is not a regulated financial institution, it does not owe investors in ELEC tokens any fiduciary duties. This means that Electrify has no legal obligation to always act in good faith in the best interests of holders of ELEC tokens. While Electrify will have regard to the interests of holders of ELEC tokens, it is also permitted to consider the interests of other key stakeholders and to prefer these interests over the interests of ELEC token holders. This may mean that Electrify is permitted to make decisions that conflict with the interests of ELEC token holders. Not owing any fiduciary duties to holders of ELEC tokens also means that holders of ELEC tokens may have limited rights of recourse against Electrify and its affiliates in the event of disputes.

TAX RISKS

The tax characterization of ELEC tokens is unclear. Accordingly, the tax treatment to which they will be subject is uncertain. All persons who wish to receive ELEC tokens should seek independent tax advice prior to deciding whether to receive any ELEC tokens. Electrify does not make any representation as to whether any tax consequences may arise from purchasing or holding ELEC tokens.

RISKS FROM THIRD PARTIES

The tokenised nature of ELEC tokens means that they are a blockchain-based asset. The security, transferability, storage, and accessibility of blockchain assets depends on factors outside of Electrify's control, such as the security, stability, and suitability of the underlying blockchain (in this case, the Ethereum blockchain), mining attacks, and who has access to the smart contract where the ELEC tokens are stored. Electrify is unable to assure that it can prevent such external factors from having any direct or indirect adverse impact on any of the ELEC tokens. Persons intending to receive the ELEC tokens should note that adverse events caused by such external factors may result in the loss of some or all of the ELEC tokens. Such loss may be irreversible. Electrify is not responsible for taking steps to retrieve ELEC tokens lost in this manner.

RISKS IN RECEIVING THE ELEC TOKENS

Electrify cannot and does not guarantee or otherwise assure that there are no risks in relation to the issuance of the ELEC tokens. The ELEC tokens may, depending on the manner in which the relevant issuance is effected, involve third parties or external platforms (e.g., wallets). The involvement of such parties or platforms may introduce risks that would not otherwise be present, such as misconduct or fraud by the third party, or your failure to receive the ELEC tokens upon duly making payment because of a third-party wallet's incompatibility with the ELEC tokens. Electrify is not responsible for any risks arising due to the involvement of third parties, including the risk of not receiving (or subsequently losing) any or all ELEC tokens issued to you.

谢谢阅读



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