

**TRANSFORMING
TOMORROW**

▶ Pathway to net zero



SET AWARDS 2023

12 SEPTEMBER 2023



Presenters

Mr. Thanawat Trivisvavet
Managing Director



Mr. Vorapote Uchoepaiboonvong
Executive Director



Mrs. Muntana Auekitkarjorn
Deputy Managing Director
Corporate Planning



Ms. Tuangporn Bunyasaranand
Assistant Managing Director
Corporate Communication and
Sustainability Management



1. Managing Growth and Competitiveness

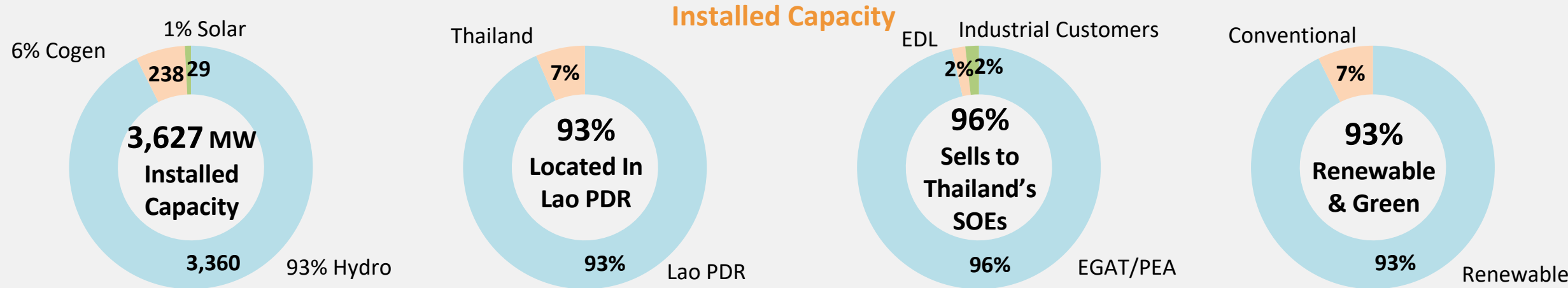
- **Long-term Growth & Sustainability Strategy**
- **Responsible Corporate Governance Structure**

2. Climate Change Risk Management

3. Sustainable Social & Community Development

Portfolio Recap

Installed Capacity increased from the addition of Luang Prabang Hydroelectric Power Project of 1,460 MW, bringing the total capacity to 3,627 MW and driving the renewable energy proportion up reach 93%



Project in Lao PDR			
	Nam Ngum 2		Xayaburi
			
COD:	2013	COD:	2019
Ownership:	46.0%	Ownership:	42.5%
Capacity MW:	615	Capacity MW:	1,285
Equity MW:	283	Equity MW:	546
			Luang Prabang
			
SCOD:	Early 2030	SCOD:	Early 2030
Ownership:	50.0%	Ownership:	50.0%
Capacity MW:	1,460	Capacity MW:	1,460
Equity MW:	730	Equity MW:	730

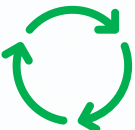
Project in Thailand			
	Bangpa-in Cogeneration		Solar Projects
			
COD:	2013, 2017	COD:	2012-2020
Ownership:	65.0%	Ownerships:	30%-100%
Capacity MW:	238	Capacity MW:	29
Equity MW:	155	Equity MW:	19

SOEs: State-owned Enterprises; EDL: Electricite du Laos; COD: Commercial Operation Date

Long-term Growth & Sustainability Strategy Recap

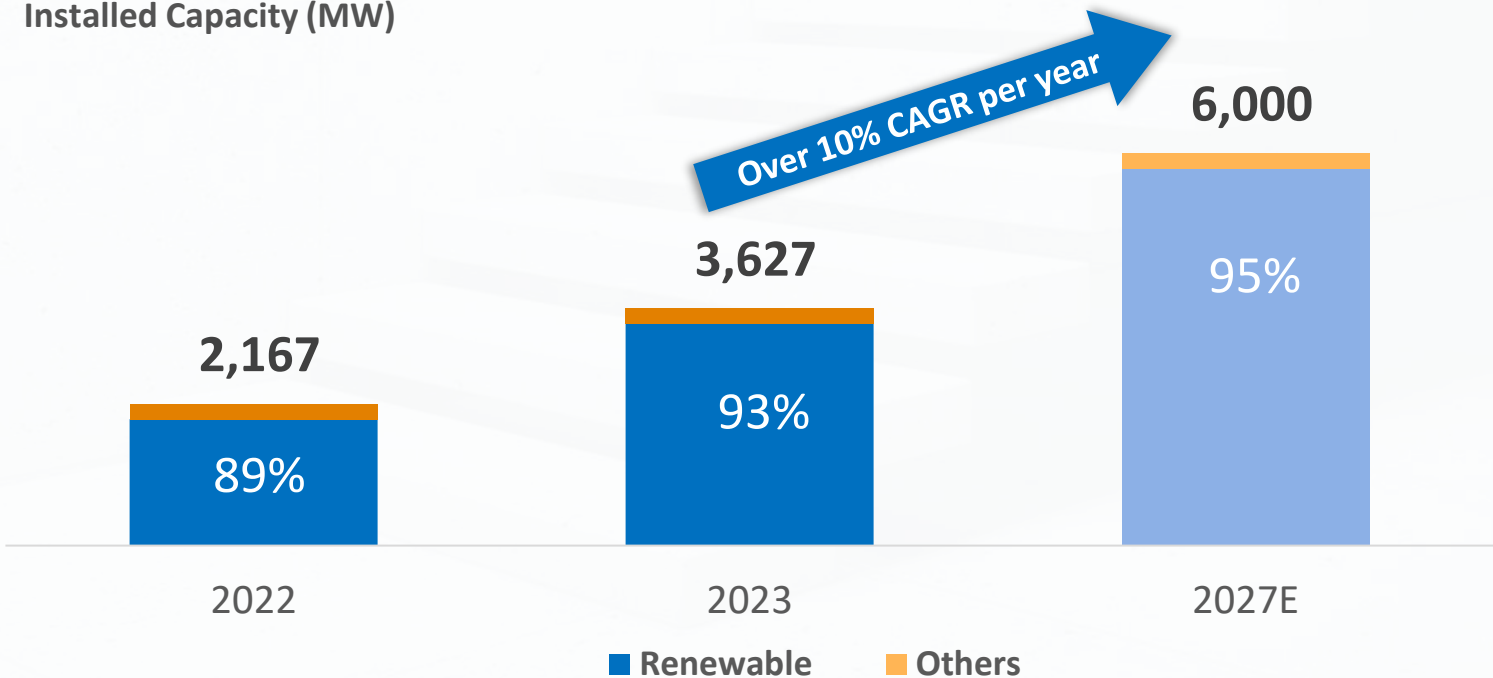
TO BE ONE OF THE REGION’S **LARGEST PRODUCERS** OF ELECTRICITY FROM **RENEWABLES** WITH ONE OF THE **LOWEST CARBON FOOTPRINTS**

 **6,000**
MW by 2027

 **>95%**
RENEWABLE
BY 2043

 **ASEAN**
FOCUSED

Installed Capacity (MW)



NET ZERO GHG  EMISSION
BY 2050

 **100%**
INTERNAL RENEWABLE
ELECTRICITY USE
BY 2043

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Key Strategic Risk: Long-term Growth and Sustainability

One of the most important economic risk factors is how can CKPower maintain its competitiveness and achieve its long-term aspirations both in terms of growth and sustainability.



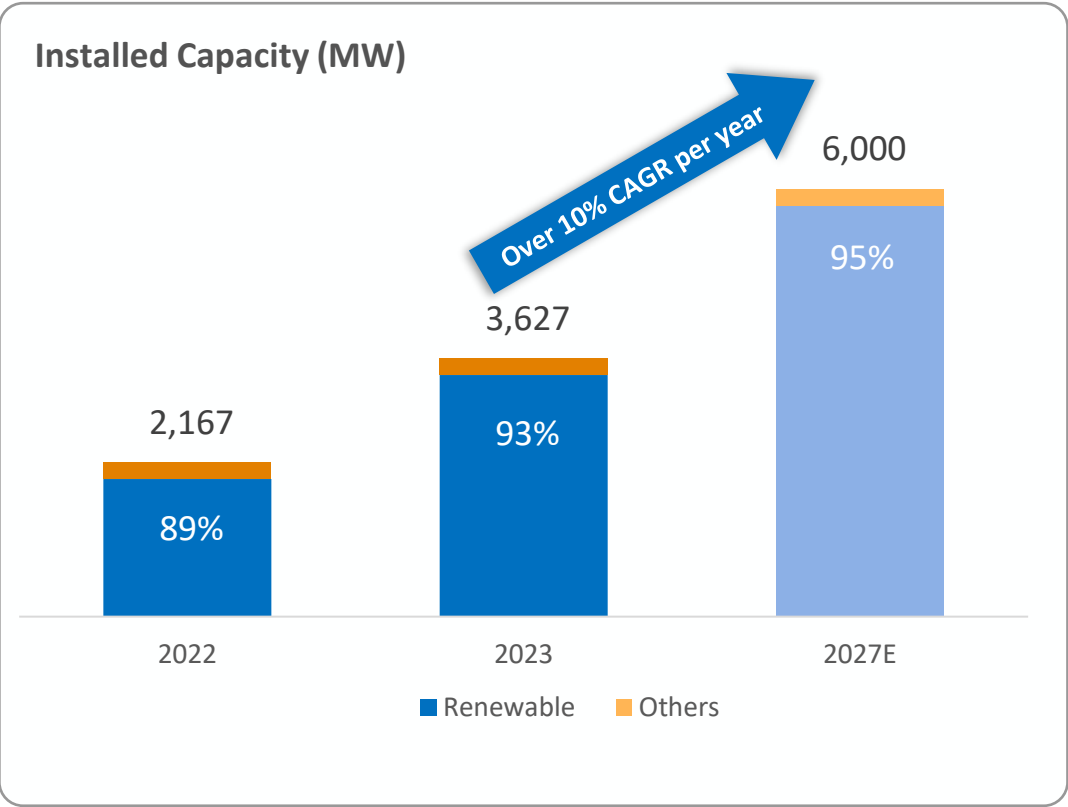
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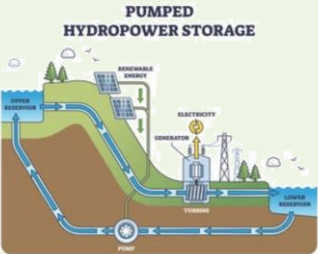
ASEAN
FOCUSED



Key Challenges on Growth Strategy	
Organic Growth Execution	- Increased competition in renewable projects (hydro, solar, wind) - Limited number of buyers
Finding New S-Curve	- Applying new technology to improve existing plants - Finding complementary businesses
ESG Requirements	- Pressure for compliance with stringent ESG standards - Growing sustainably and responsibly

Strategic Framework to Tackle Key Challenges

Expansion within renewable power space has become increasingly difficult. Despite hydro power plants being among the lowest cost power plants for electricity buyers, identifying and securing hydro power projects as well as finding potential optimization and complementary business continues to be challenging and is therefore the area where CKPower put a lot of effort and activities to ensure success.

Challenges	Key Mitigation Tools	Framework
Organic Growth Execution	5-year Strategic Roadmap - Project pipeline & client/customer screening - Execution strategy and action plan - Risk assessments & investment criteria Business Development  Partnership Engagement Shared Service Support	Enterprise Risk Management  - Track strategic & operational risks through the framework and align with sustainability strategy - Bottom-up KPIs to drive implementation results - Result-oriented reward and recognition structure, aligned with strategic framework
Finding New S-Curve	Exploration Team - New innovations & ideas generation from young engineers - Complementary to organic growth - Project: Green Hydrogen, pumped storage hydropower plant   	
ESG Requirements	Compliance Beyond Requirement - Apply Equator Principles & IFC Performance Standards to answer responsible lending requirement and customers' clean electricity demand - Invest in State-of-the-art biodiversity and sediment management systems on the Mekong river to address any potential concerns in a scientific way - Green Bond issuing align with the Thailand Taxonomy 	

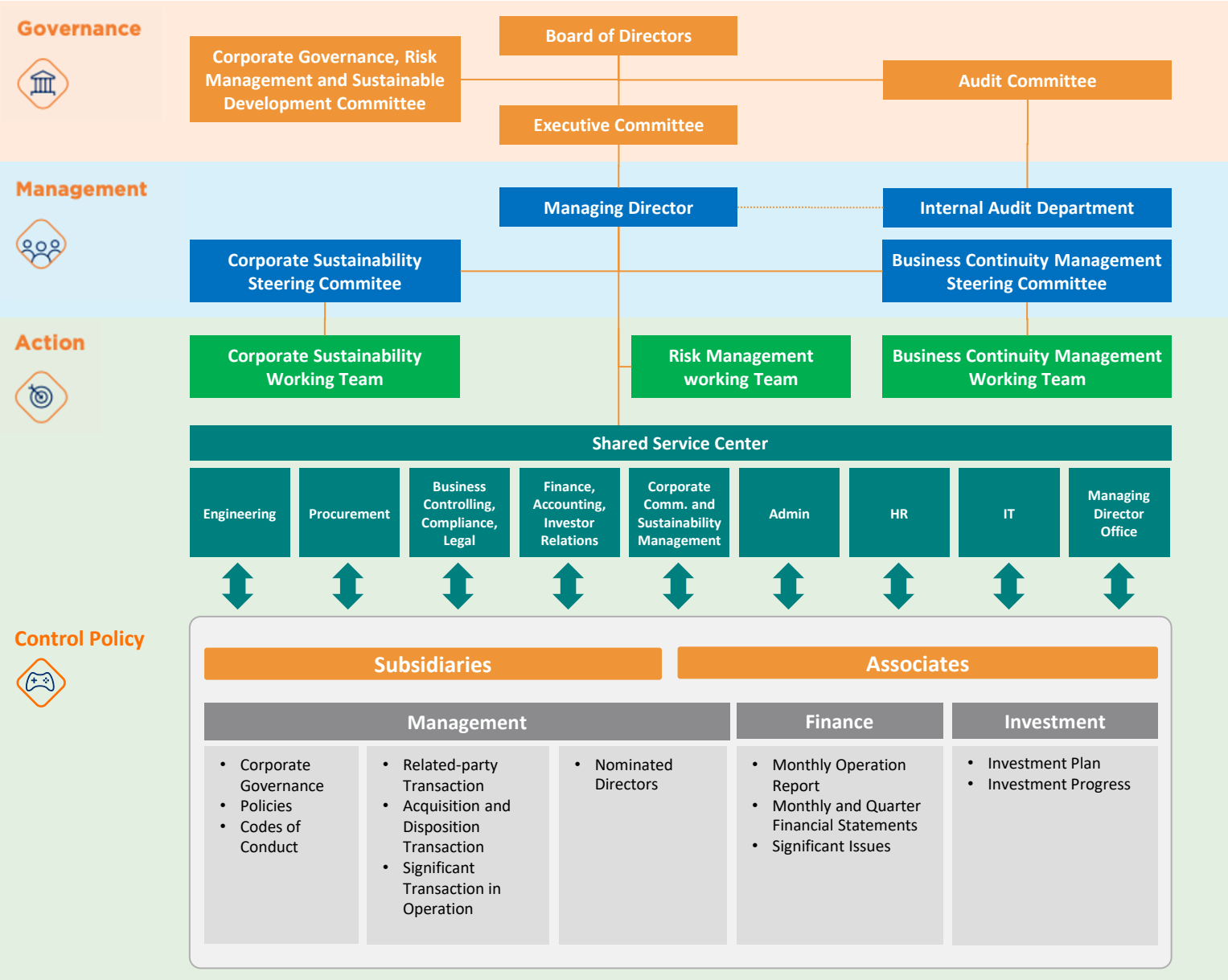
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Holding Company Structure with Control Policy for All Affiliates



CKPower operates as holding company, investing in multiple subsidiaries and associates.

To ensure that all affiliates within the group operate in accordance with Holding Co. policies, CKPower applies Control Policy universally to all its affiliates and manages their operations through Shared Service Center.

Standard Certifications



Main Third-party Verifiers & Advisors

GRI Standards



Green Bond



Environmental & Social Advisor



Owner Engineer



Main Suppliers & Platforms



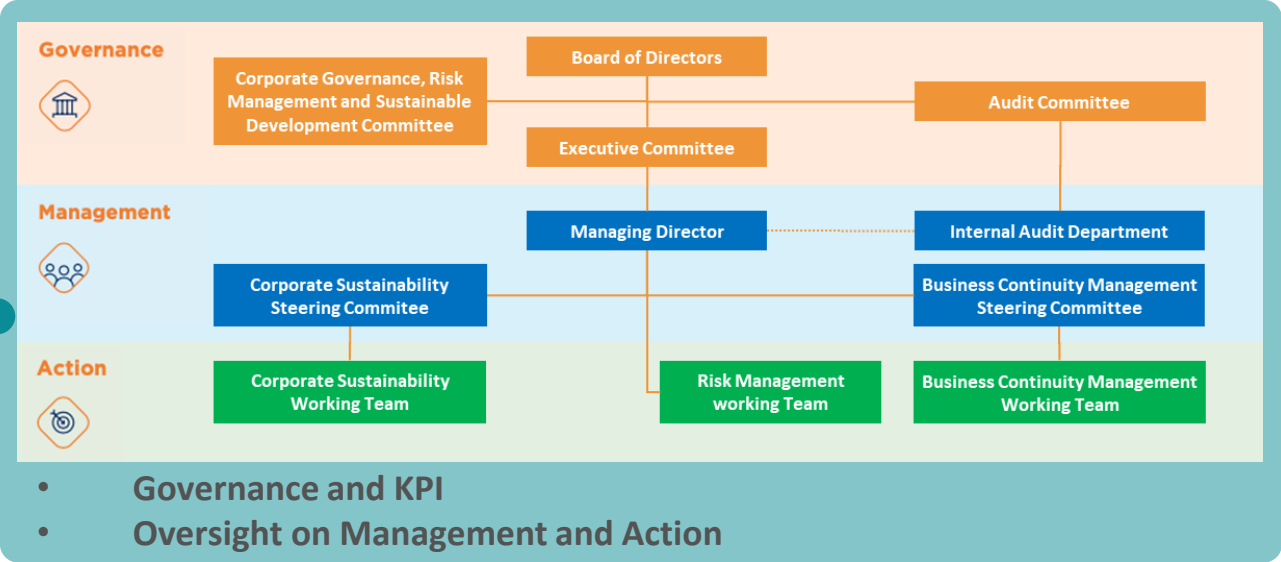
Structure of Shared Service Center

CKPower uses Shared Service Center to manage and support all its subsidiaries and associated companies.

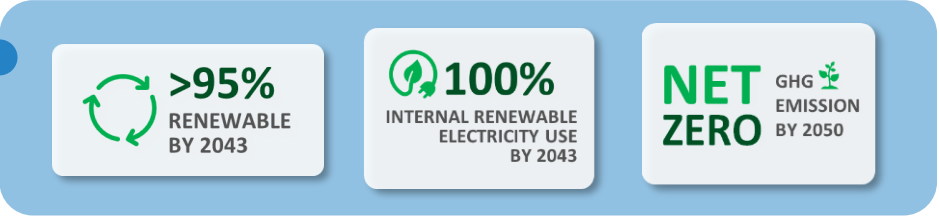
		Local Operation	Shared Service Center								
		Local Team at Each Site Location	Engineering	Procurement	Business Controlling, Compliance, Legal	Finance, Accounting, Investor Relations	Corporate Communication & Sustainability Management	Admin	HR	IT	Managing Director Office
Lao PDR	 CKPower ENDLESS ENERGY	Holding Co.	Standardized Policy, Compliance, Risk Management System, Quality Control and ERP Platform Economies of Scale and Scope e.g. Centralized Hydro Forecasting & Engineering Support Free Flows of Best Practice, Knowhow and Efficient Resource Movement & Allocation								
	 Nam Ngum 2	Local Operation & Maintenance Team									
	 Xayaburi										
	 Luang Prabang										
Thailand	 Bangpa-in Cogeneration	Local Operation & Maintenance Team									
	 Bangkenchai										

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CKPower Climate Change Framework



- Climate Change Risks Assessments & Mitigations
- Integrate in Enterprise Risk Management
- Explore Potential Opportunity for further development

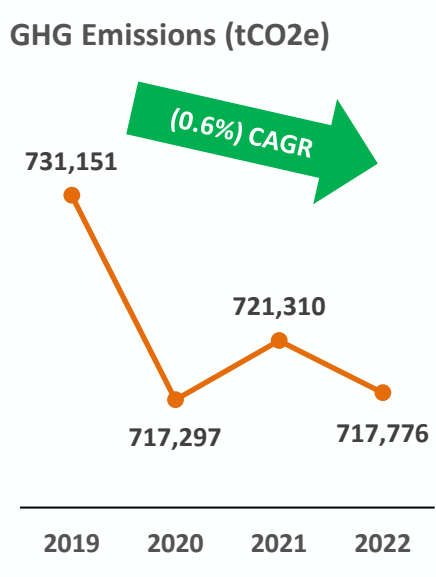
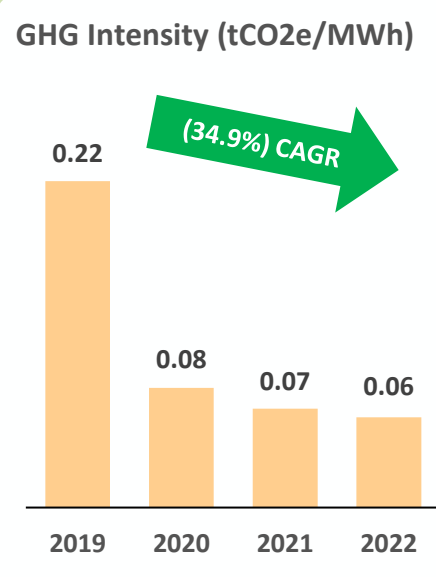
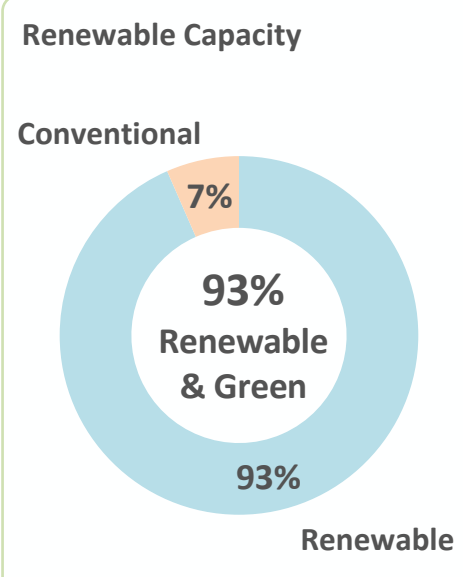


Climate Change Risks & Mitigations in Action

Mitigation strategies are designed and executed to address all risk categories.

	Short	Med.	Long	Climate-related Risks	Indicators	Scenarios	Risk Description	Tools	Mitigation Strategy	
Physical Risk				Drought	Rainfall	*RCP 2.6 RCP 8.5	Water Stress: Aquaduct showed low risk in water stress for baseline and climate change impact show no change (Lao PDR)	 	Projects Designed with Physical Risk Buffers - Flood: Probable Maximum Flood - Earthquake: Safety Evaluation Earthquake - Drought: Long-term average water flows - Temperature: Adequate buffer in machine - Extreme weather: lightning arresters and structure reinforcements for extreme weather Health and Safety Protocols Support both business and community EAP: Emergency Action PlanCrisis Management & Communication Protocols	Community Care - Relocation and resettlement management including providing housing, which is resilient to physical climate risks - Livelihood restoration program - Occupational development program
				Flood	River Discharge Electricity Generation		Electricity Generation: In 2023-2050, both scenario showed decreasing trend of river discharge, leading to lower electricity generation. (Lao PDR)			
				Increase Extreme Weather: High wind intensity & heavy rainfall	Annual Expected Damage	RCP 2.6 RCP 8.5	High wind intensity and heavy rainfall have potential to cause damage to transmission line (Lao PDR)			
				Increased Temperature	Temperature	RCP 2.6 RCP 8.5	No significant impact on operation			
Transition Risk				Misunderstanding of impact caused by renewable plant				International Standard Compliance on ESG - TCFD and GRI Standards - IFC Performance Standards - Equator Principles Long-term Strategic Plan & Exploration Team - Improve competitiveness - Secure long-term growth Net Zero and GHG Reduction Targets - Adapt to customer demand for ESG - Stay ahead of more stringent regulatory requirements iREC and Other Clean Fuel Initiatives - Enhance business by capitalizing on existing plants		
				Stakeholder concern and negative feedback						
				Increased Technological Competition						
				Change in customer demand and behavior						
				Increased pricing of GHG Emissions						
				Mandates on and regulation of existing products and services						

Climate Change Strategy, Targets and Results

Reduce GHG Emissions	Improve Energy Efficiency	Increase Renewable Capacity	Shift to Renewable Energy Consumption	Monetize Renewable Assets																										
Targets - ST: Reduce GHG by 0.2% from the baseline - LT: Net Zero GHG by 2050	Targets Improve energy efficiency by 5% from baseline	Targets Increase renewable capacity to >95% by 2043	Targets 100% renewable electricity consumption by 2043	Targets - Sell iREC from renewable electricity generation - Green Bonds issuance																										
2020-2022 Reduce GHG by 0.6% p.a. from 2019 baseline ✓	2022 Improve energy efficiency by 9% from 2021 baseline ✓	2023 Increase renewable capacity to 93% ✓	2022 92% renewable electricity consumption ✓	2022 - XPCL Green Bonds issuance - BKC iREC sales ✓																										
GHG Emissions (tCO2e)  <table border="1"><caption>GHG Emissions (tCO2e)</caption><thead><tr><th>Year</th><th>2019</th><th>2020</th><th>2021</th><th>2022</th></tr></thead><tbody><tr><td>Value</td><td>731,151</td><td>717,297</td><td>721,310</td><td>717,776</td></tr></tbody></table>	Year	2019	2020	2021	2022	Value	731,151	717,297	721,310	717,776	GHG Intensity (tCO2e/MWh)  <table border="1"><caption>GHG Intensity (tCO2e/MWh)</caption><thead><tr><th>Year</th><th>2019</th><th>2020</th><th>2021</th><th>2022</th></tr></thead><tbody><tr><td>Value</td><td>0.22</td><td>0.08</td><td>0.07</td><td>0.06</td></tr></tbody></table> TH Grid Emission = 0.5986 tCO₂e/MWh*	Year	2019	2020	2021	2022	Value	0.22	0.08	0.07	0.06	Renewable Capacity  <table border="1"><caption>Renewable Capacity</caption><thead><tr><th>Category</th><th>Percentage</th></tr></thead><tbody><tr><td>Renewable & Green</td><td>93%</td></tr><tr><td>Conventional</td><td>7%</td></tr></tbody></table>	Category	Percentage	Renewable & Green	93%	Conventional	7%	BIC Solar Project  NN2 Floating Solar 	XPCL Green Bonds  Bt 8,395 mn BKC iREC  BKC sold 10,000 REC in 2022
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*Ref.: TGO ไฟฟ้าพลังงาน grid mix ปี 2016-2018; LCIA method IPCC 2013 GWP 100a V1.03 Thai National LCI Database, TIISMEC-NSTDA, AR5 (with TGO electricity 2016-2018) Latest version

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To Be Responsible To The Environment Community And All Stakeholders

Earning our License To Operate : Building Community Trust for a Sustainable Growth

Environmental and Social Empowerment

Pre-Project

Program Development

During and Post

Management And
Monitoring

Housing and Infrastructure Development

Community Development Program
Livelihood and Income Enhancement

Public Health Care

Value creation for society

Implementing renewable energy solutions promotes innovation with society, generates value for both the community and the environment, and leads to a more sustainable and enhanced quality of life

Renewable Electricity
For A Better Quality Of Life

Preserving Restoring Natural Resources

Co-creating Innovation
To Enhance Opportunity To Communities



ZERO case unresolved complaint
 Create value for society and ecosystem with renewable electricity



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Environmental and Social Empowerment

Housing and Infrastructure Development

Prioritizing land distribution with comprehensive infrastructure design including housing, health facilities, schools, market, security, and agricultural and farming development.

- Surveying and locating suitable production land
- Health office, schools, market and infrastructures
- 23 Schools (Kindergarten 9, Primary 10, Secondary 4)
- 4 Hospitals



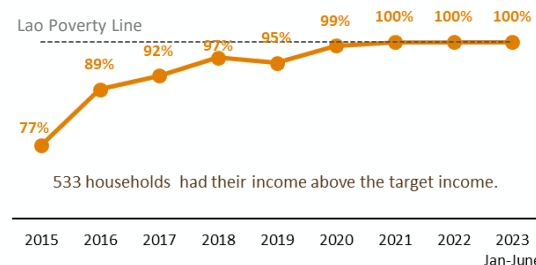
Community Development Program Livelihood and Income Enhancement

Foster community resilience post-relocation, nurture livelihood opportunities, and deliver holistic education and health initiatives.

- Capacity building for community and village organizations
- Occupational development and income generation
- Engagement with the communities through festivities, sport events and religious ceremonies.
- Cultural and historical Heritage Management
- Environmental management: Air quality, water quality. Water and waste management – Public cleaning day



Income Enhancement 2022-2023



2022-2023

- Support 1,553 children and youth to access education.
- Enhance agricultural and nonfarm occupation

Public Health Care

Elevate health standards for residents relocated from the power plant and the surrounding communities.

- Public health management plan
- Recording of public health status



2022-2023

- Implement annual health screenings as a preventive measure to mitigate the risk of serious illnesses for 2,900 children and adults in 533 households in 11 communities



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**Renewable Electricity
For A Better Quality Of Life**

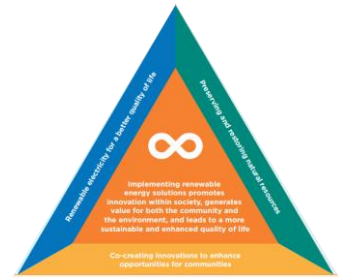
Preserving Restoring Natural Resources

**Co-creating Innovation
To Enhance Opportunity To Communities**



ZERO case unresolved complaint
Create value for society and ecosystem with renewable electricity

Value creation for society



Implementing renewable energy solutions promotes innovation with society, generates value for both the community and the environment, and leads to a more sustainable and enhanced quality of life.

CKPower COMPETENCY

Empower communities with our core competency and give a better quality of life through access to clean energy and essential utilities



CKPower CONNECTION

Connect with value co-creation partners to sustainably strengthen and empower society

CKPower CO-CREATION

co-create with community to improve processes, and develop innovations for a sustainable society

CKPower COOPERATION

cooperation with employees and communities to bring about development and advancement of society at large

Renewable Electricity For A Better Quality Of Life

Focus

Improving access to renewable energy for a better quality of life.

Project driver :

Hing Hoi Project

- Clean electricity for communities
- Clean water for communities
- Clean electricity for Teacher for Change
- Introducing Clean Energy to Communities
- Edutainment with renewable energy

Target in 2026

- Renewable Energy Access: 150,000 Watts Access to renewable energy by 2026
- Youth Impact: 20,000 Children and youth have added value to society

2022-2023

- Renewable Energy Access: Successfully provided 35,230 Watts of renewable energy
- Youth Impact: Engaged 3,770 children and youths through renewable energy edutainment.

Preserving Restoring Natural Resources

Focus

Conserving, protecting, and restoring natural resources and the environment sustainably

Project driver :

Grow Green

- Waste-to-Value
- Grow Together
- Green Power Plant

Target in 2026

- Knowledge Empowerment: 10,000 individuals educated on natural resources preservation.
- 80 rai terrestrial forest conservation

2022-2023

- Knowledge Empowerment: 102 individuals educated on resource preservation.
- Waste-to-Value Initiative: Transformed food waste into valuable soil conditioner.

Co-creating Innovation To Enhance Opportunity To Communities

Focus

Further enhancing innovations and creating opportunities of occupation development for communities

Project driver :

OPOP (One Power plant One Product)

- Development of innovations to create job opportunities, improve products, and increase income for local communities.
- Strengthening the network among partners for innovations in occupation development

Target in 2026

- Product development in communities leads to increased income and overall benefits at least 3 products and at least 400,000THB

2022-2023

- Product Initiatives: Two products selected for development - marinated fish and native crafts.
- 2023: Marinated fish project is under Food Sanitation training / Native craft: Teaching sewing design for company souvenir

Continuous Hing Hoi Project from 2016-2023



2016



Mae Hong Son Province
1. Poo Kham Noi Village
2. Mae Pa Klang Village

1. Build 3 classrooms for 50 kids with Rooftop solar panel
2. Landscaping for installing water turbine with hydropower expertise

2017



Mae Hong Son Province
• Ban Mae Loe Border Patrol Police Education Center

1. Build dikes, water storage, install solar panel to pump water to storage tank all year round
2. Floor improvement in both classrooms and canteen

2018



Chiang Mai Province
Mae Mu Nai under the sponsorship of CK Power.

1. Designing a school dorm, and teacher camp with architectural capabilities that promote energy efficiency,
2. Installing solar pole around the camp

2019



Luang Prabang Province, Lao PDR
• Baan Kang School

1. Landscaping for suitable learning function
2. Awareness raising on preservation of natural resources
3. Edutainment with renewable energy session from engineers

2020



Nakhon Ratchasima Province, Thailand / Baan Doo (Saharat Wittaya) School

1. Waste sorting awareness raising including edutainment about waste to energy and renewable energy session
2. Support computer to facilitate learning



Ayutthaya Province, Thailand
• Wat Kudi Prasit School

1. Utilizing engineering expertise to design, decorate, and improve all areas
2. Edutainment with renewable energy session from engineers

2021-2022



Xaisomboun Province, Lao PDR
• Hin Hua Seua Kindergarten School

Utilizing engineering expertise to design and construct a school building, solar water pumping and clean drinking water filtration systems



Lao PDR
• Nabong Village

Install 33 solar light poles to illuminate roads and reduce accidents caused by insufficient lighting during the night, covering a distance of 1.5 kilometers

2022



Prachuap Khiri Khan Province, Thailand
• Wat Na Huay

1. Install solar rooftop to reduce the electricity cost of the temple by an average of 1,800 Baht per month.
2. Install solar light poles for the main roads within the temple premises to illuminate the roads during the nighttime.



Ayutthaya Province, Thailand
• Wat Wiwek Wayupat
• Klong Phuthra community

Develop and install solar-powered water turbines canal to improve the water quality and environmental management

2023



Chiang Mai Province
• Mae Mu Nai (Monitoring & Maintenance)
• Lion Mahajak 9 Border Patrol School

1. Education on energy conservation and renewable energy concepts
2. Install solar light poles at community bridge



Nakhon Ratchasima, Ayutthaya Province, Thailand
Udomsilwitthaya, PakThongchai Chunhawan

1. Education on energy renewable energy
2. Establish a fund for renewable energy

Renewable energy project Is on process

Key Benefit Of CKPower Development

CKPower believes that hydroelectric power project developments have substantial positive impacts to Thailand, Lao PDR, and the world.



CKPower group's
hydroelectric
power projects



Luang Prabang



Xayaburi



Nam Ngum 2



C – Clean Electricity
Environment

- Provide clean, renewable energy to Thai People
- Support global initiatives of Net Zero and GHG Emissions reduction
- Reduce fossil fuel consumption
- Preserve biodiversity, particularly aquatic life in rivers



K – Kind Neighbor
Social

- Create value to society with renewable energy
- Community Development Program, Livelihood and Income Enhancement from CKPower ensure 100% of villagers are above poverty line with better living standard
- Over 5,000 employment positions opening for Lao people during construction
- Improve skill and capability of workers, both Lao and Thai



P – Partnership for Life
Governance and Economic

- Support Thailand electricity stability
- Provide cheap electricity to Thailand
- Reduce Thailand's fossil fuel dependency
- Support Thailand's banking industry as the projects only use Thai financial institutions
- Support Lao PDR's strategy to be "Battery of Asia"
- Contribute to the Lao PDR's state budget and GDP through royalty, tax and electricity export
- The hydropower projects will be transferred to the Lao State at the end of the Concession Period without any cost, enabling the Lao PDR to enjoy the full financial benefits over the long term.

RENEWABLE ENERGY FOR A SUSTAINABLE FUTURE



THANK YOU

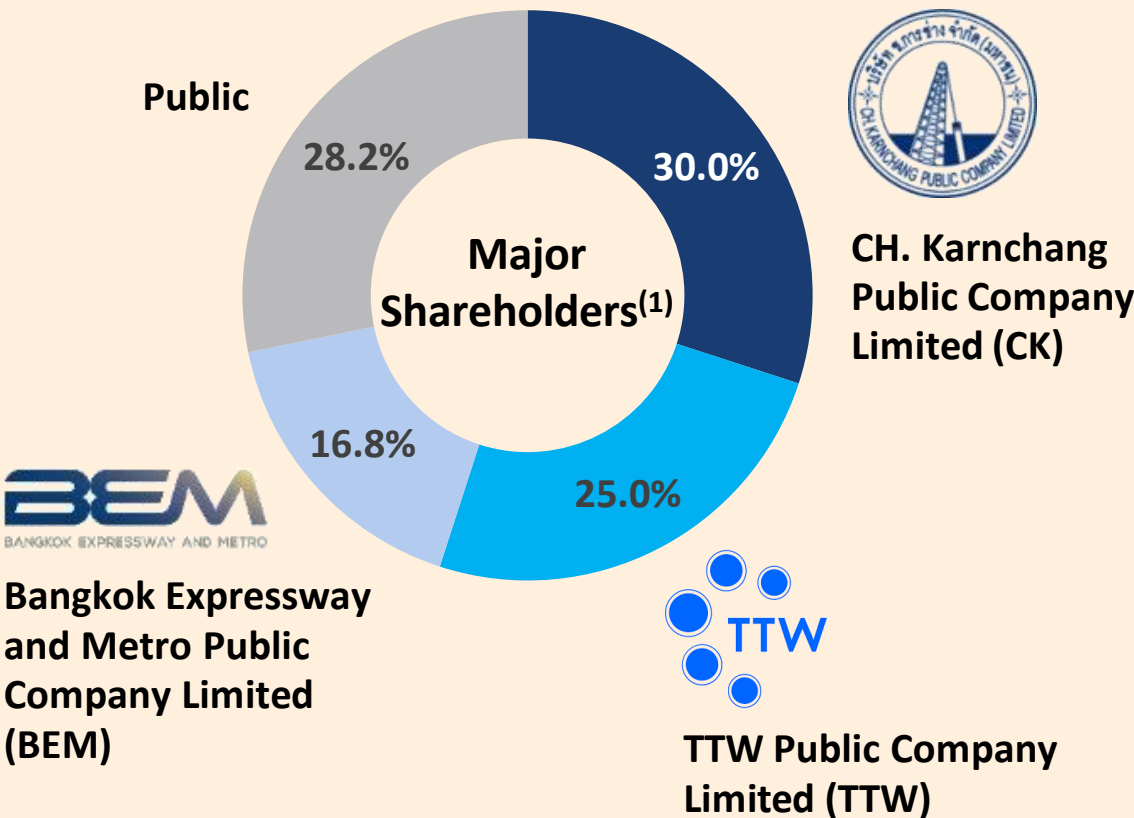


APPENDIX

Corporate Overview



The Power Investment Arm of CH. Karnchang Group



CKPower
ENDLESS ENERGY

General Information

Symbol	:	CKP
Established Date	:	8 June 2011
Listed Date	:	18 July 2013
Paid-up Shares	:	8,129,382,729 shares
Par	:	Bt 1.00 per share
Registered Capital	:	Bt 8,129 mn
Market Cap	:	Bt 27,965 mn ⁽²⁾
Indices	:	SET 100 SET THSI SET CLMV
Sector	:	Energy
TRIS Rating	:	A / Stable
CG Score	:	

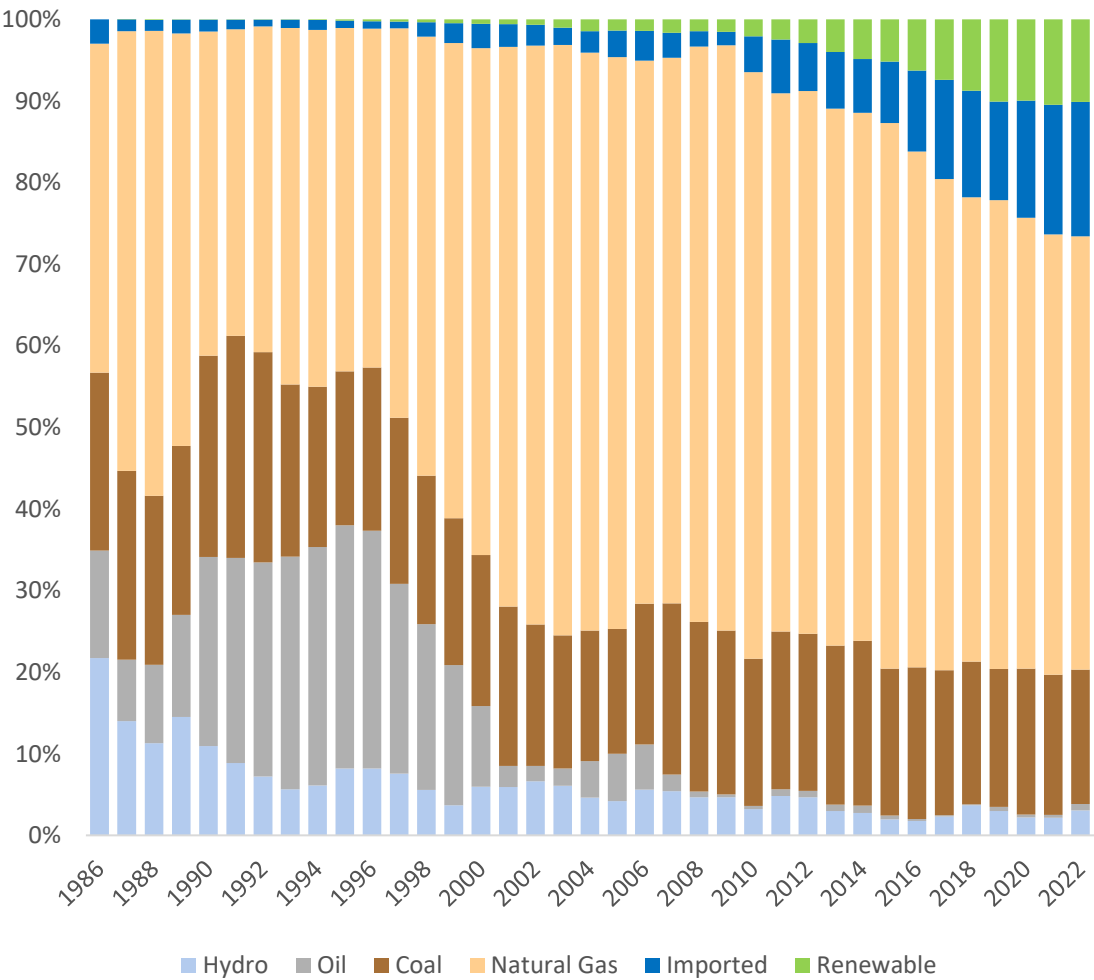
(1) As of 1 June 2023, (2) As of 10 August 2023

CKPower's Thailand Electricity Market Share

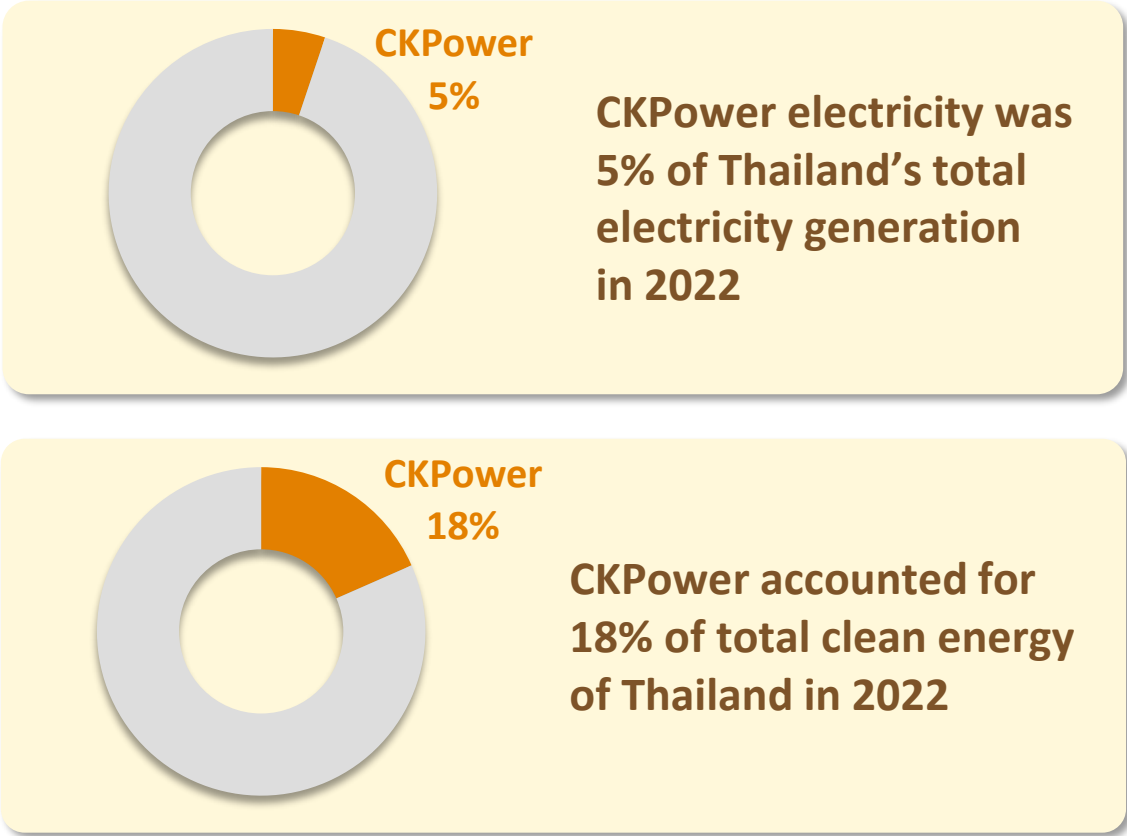


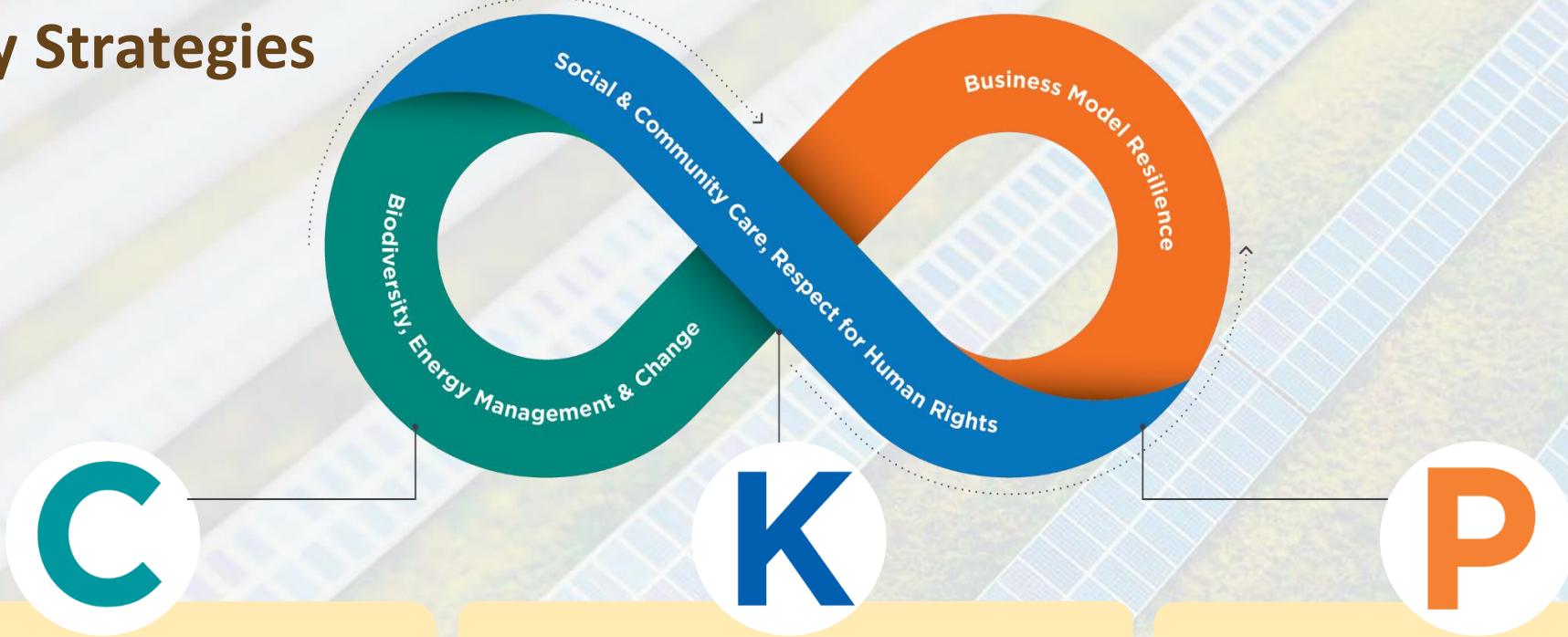
In 2022, CKPower contributed 5% to total Thailand's electricity usage in 2022. With our predominant renewable energy portfolio, we accounted for 18% of total clean energy used by Thai people in 2022.

Thailand's Power Generation by Fuel Type



CKPower's Market Share of Thailand's Electricity Industry





CLEAN ELECTRICITY
Environment

Energy management and Climate

- 100% Renewable Internal Electricity Consumption with REC by 2043
- Over 95% Renewable Capacity by 2043
- Net Zero GHG Emission by 2050

Biodiversity

- Develop Biodiversity Roadmap by 2023
- Residual Impact Assessment for All Operation Sites by 2025
- Strive for No Net Loss (NNL) of Biodiversity and Ecosystem by 2040

KIND NEIGHBOR
Social

Respect for Human Rights

- Develop Human Rights Roadmap
- 100% Employee Awareness of Human Rights
- 100% Risk & Impact Assessment of Human Right throughout Value Chain
- Zero Cases of Human Rights Violation

Social and Community Care

- Zero Unresolved Complaints
- Creating Value for Society and Ecosystem with Renewable Electricity by 2026

PARTNERSHIP FOR LIFE
Governance & Economic

Business Model Resilience

- Explore New Customers & Geographies within ASEAN
- Integrate Digital Transformation & Other Innovations



CKPower Value Creation: Enhancing Society and the Ecosystem through Renewable Electricity Initiatives

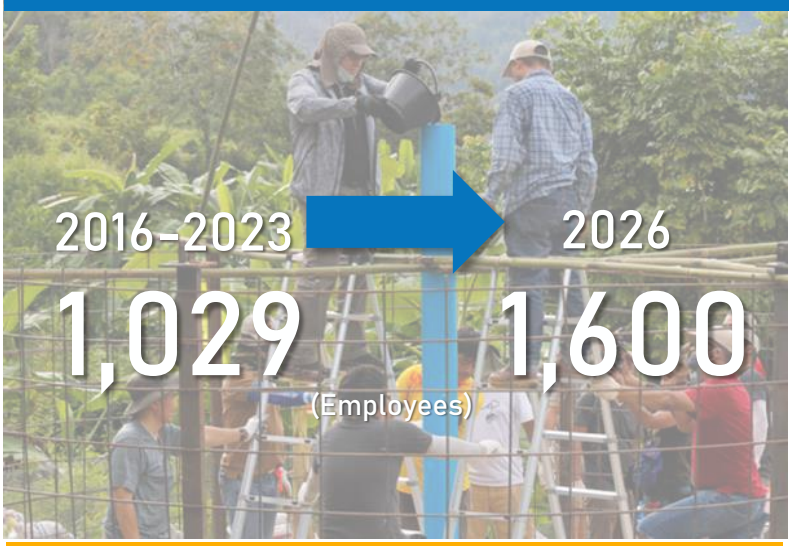
Renewable Energy Expansion



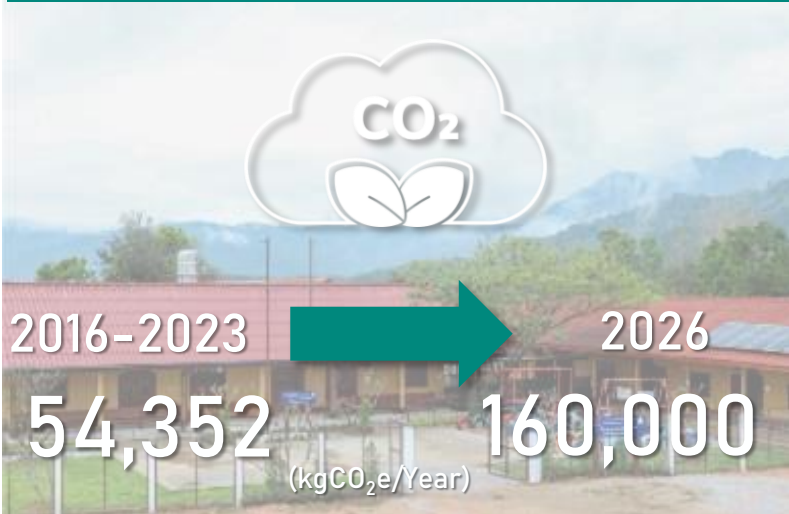
Edutainment with renewable energy



Employee Involvement



GHG Emission Reduced



Renewable Energy Education center



Community Collaboration

