



THE FUTURE IS WORTH IT

TCC GROUP

2020 Q3

INVESTORS' CONFERENCE



TCC Group Target

Cement is the Adhesive of Human Civilization

Stable Profits

**Sound Financial
Management**

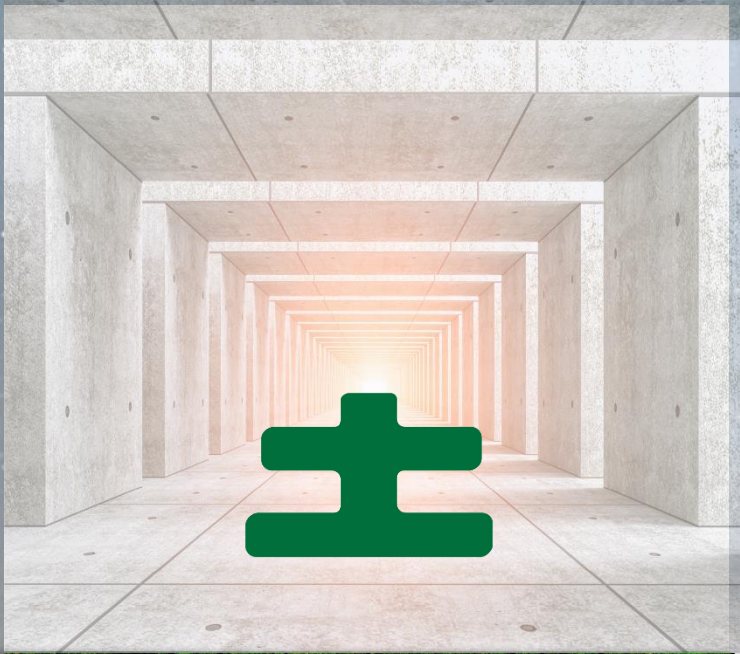
**Diversification/
Internationalization**

Sustainability

CO₂ Reduction

ESG

The New Low-Carbon TCC (3 Core Businesses)



Cement & Building Material

- Internationalization
- Carbon and Emission Reduction
- Stable Profits



Waste Treatment

- Helping Society: Household/Industrial/Toxic Waste
- Carbon Reduction: Alternative Material & Fuel



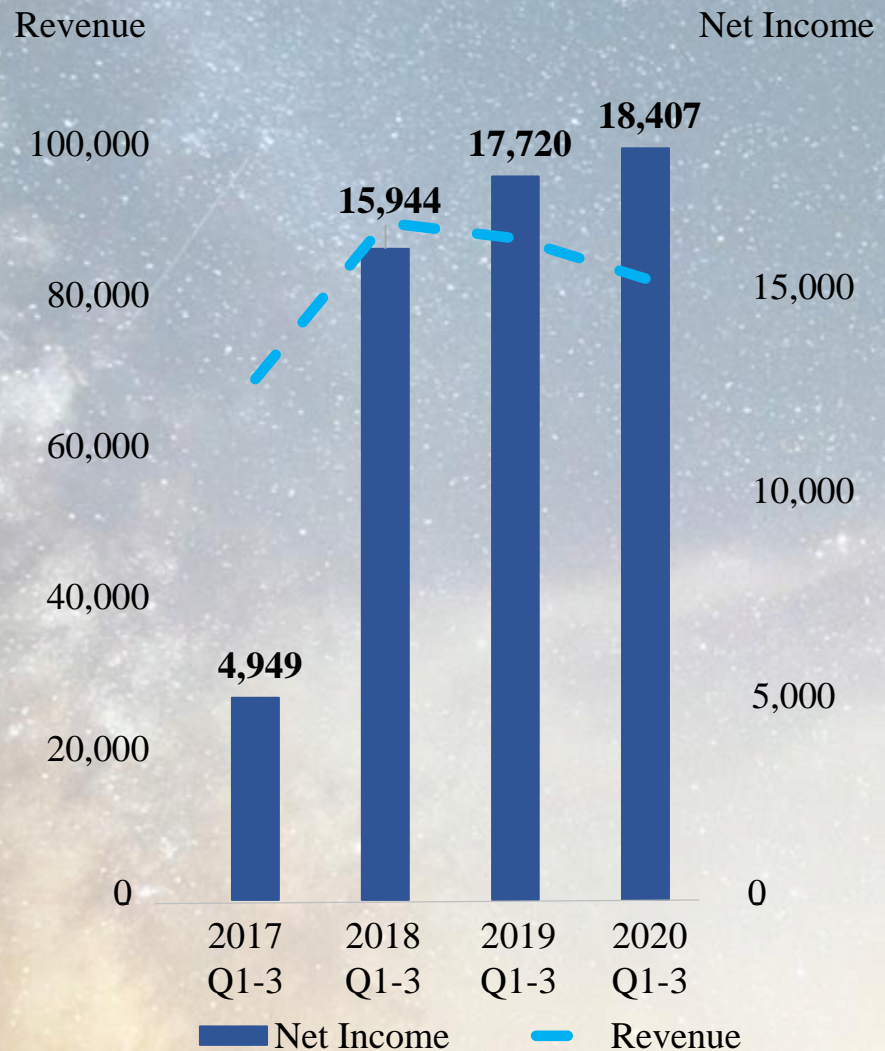
Energy

- Renewable Energy: Wind, Solar, Geothermal
- Battery
- Energy Storage & Smart Grid

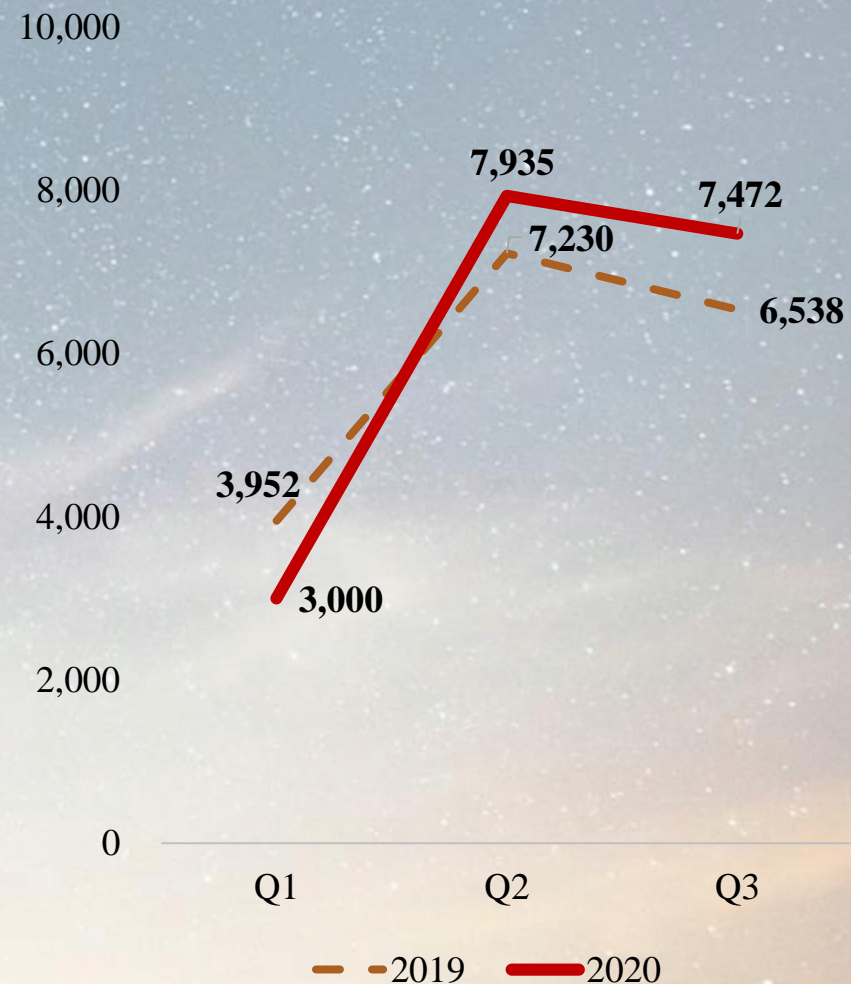
Group Net Income

Unit: NTD Million

Revenue vs. Net Income



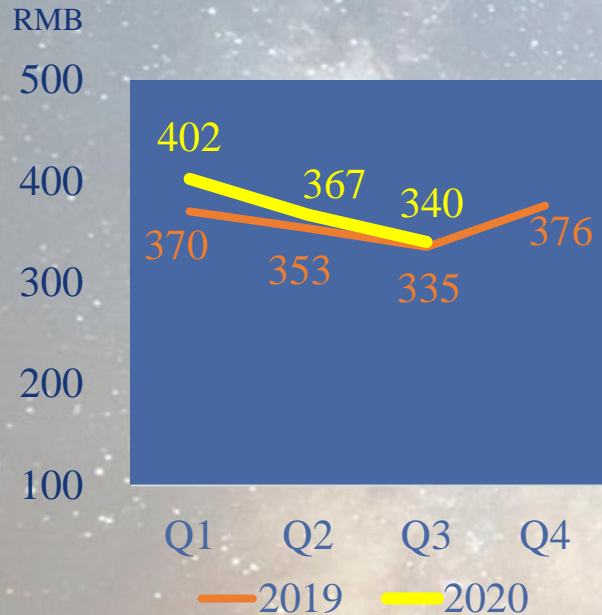
Accu. Net Income YoY +3.9%



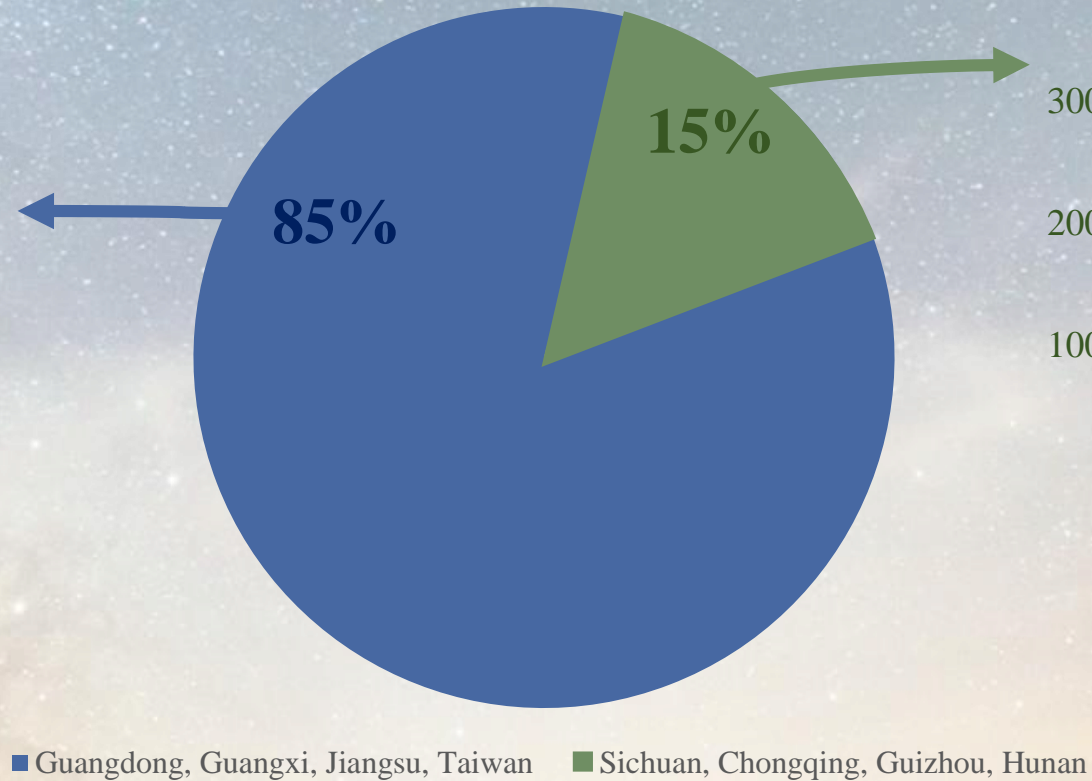
TCC Greater China Cement ASP and Net Income

Combined ASP of Main Markets (85% of Net Income) Higher than 2019

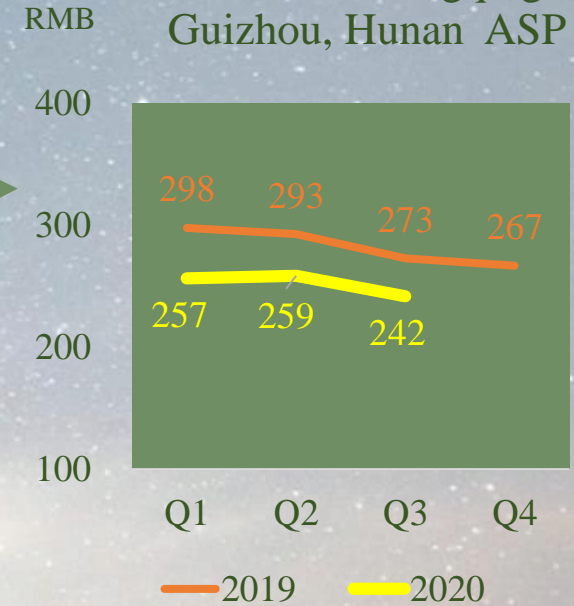
Guangdong, Guangxi, Jiangsu, Taiwan ASP



2020 Q1-3 Net Income Share



Sichuan, Chongqing, Guizhou, Hunan ASP



*Currency Exchange 1RMB=4.3NTD

Net income only includes the sales regions listed above

Mainland China Cement

RMB
150

100

50

0

■ GP/Ton — Gross Margin %

60%

40%

20%

0%

19Q1 19Q2 19Q3 19Q4 20Q1 20Q2 20Q3

Sales Volume
(Mil. Ton)

10.6 15.0 15.0 16.9 7.7 15.9 15.4

Revenue
(RMB Mil.)

3,419 4,673 4,418 5,441 2,437 4,890 4,363

GP/Ton

113 115 103 124 106 117 96

Operating Profit
(RMB Mil.)

893 1,332 1,075 1,642 541 1,444 1,122

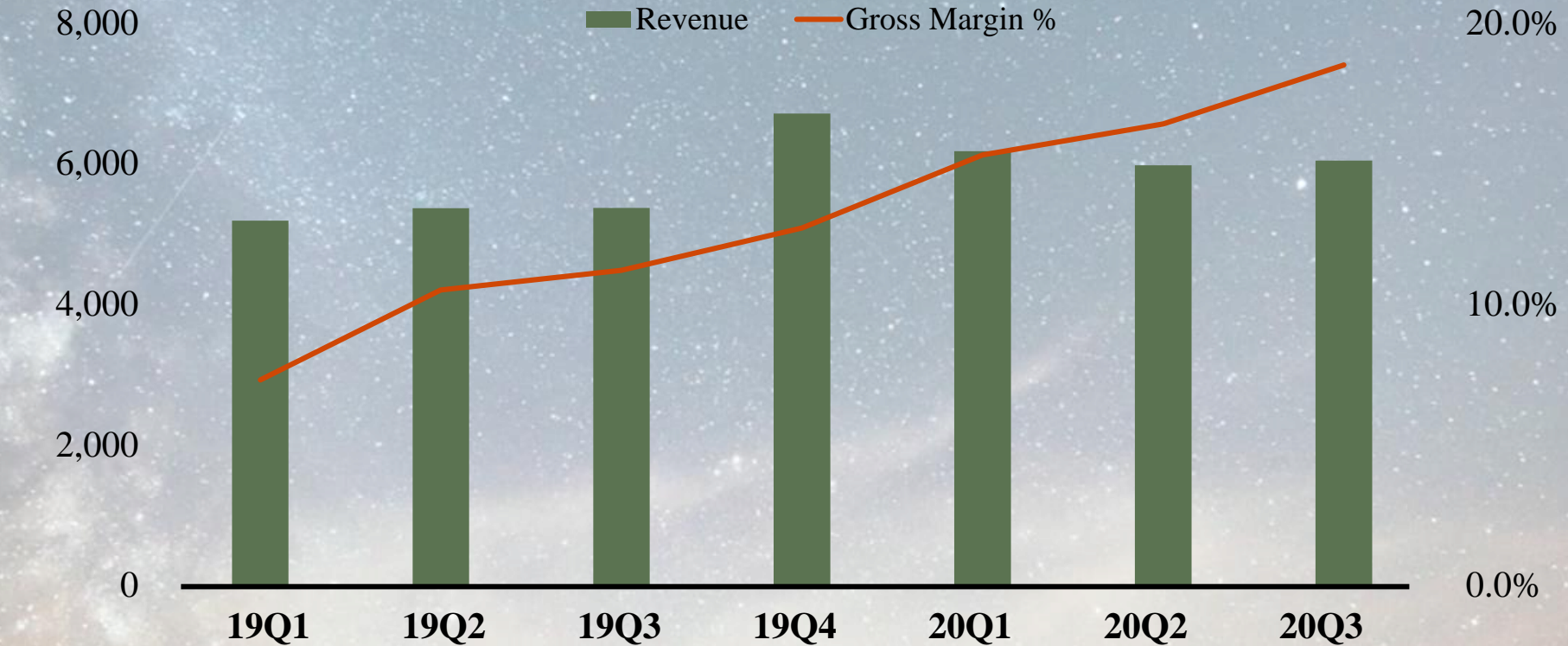
Gross Margin %

35.0% 36.7% 35.0% 38.5% 33.2% 38.2% 33.8%

Operating Profit = (Revenue – COGS – Operating Expense)

Taiwan Cement and RMC

NTD Million



Revenue

5,186 5,363 5,368 6,708 6,174 5,971 6,039

Gross Margin %

7.3% 10.5% 11.2% 12.7% 15.3% 16.4% 18.4%

Gross Margin % = Gross Margin/Revenue

Note : Due to different sales unit, no profit per unit provided

Zero Emission, Zero Waste Water Environmental RMC Plants

Taipei Plant



Hsinchu Plant



RMC Plants Join Carbon Reduction

- Carbon Footprint Verification: First RMC plant to obtain BSI 3000psi Verification
- Renewable Energy: Kaohsiung RMC Plant Rooftop Solar Panels (38KWh), October 2020
Installation of Other 23 Plants (Under Planning)

bsi.
Opinion Statement

Product Carbon Footprint
Verification Opinion Statement

This is to verify that: Taiwan Cement Corporation
Taichung Plant
No. 785, Sec. 3, Zhongqing Rd.
Daya Dist.
Taichung City
428437
Taiwan

台灣水泥股份有限公司
台中水泥製品廠
臺灣
台中市
大雅區
中清路三段 785 號
428437


Holds Statement No: PCFV 253

As a result of carrying out the verification of product life cycle greenhouse gas emissions, it is the opinion of BSI with reasonable assurance that:

- The product carbon footprint with the declared unit of one cubic meter of 3000 psi Ready-Mixed Concrete is 233.598 kilograms of CO₂ equivalent.
- No material misstatements in this product life cycle greenhouse gas emission statement were revealed.

The product life cycle GHG data quality was verified to be acceptable against the requirements of ISO 14067:2018.

This statement shall be valid for a maximum period of two years after the latest issue date on this certificate. Should there be a change in the life cycle of the product whose GHG emissions are being assessed, the validity of this opinion statement will cease.


For and on behalf of BSI: 
Managing Director BSI Taiwan, Peter Pu

Originally Registration Date: 2020-08-06
Latest Revision Date: 2020-08-06

Effective Date: 2020-08-06
Expiry Date: 2022-08-05

Page: 1 of 2

...making excellence a habit.™



Landmarks with TCC Cement



Kaohsiung Marriott Hotel
Strength: 12,000PSI



Taipei 101
Strength: 10,000PSI

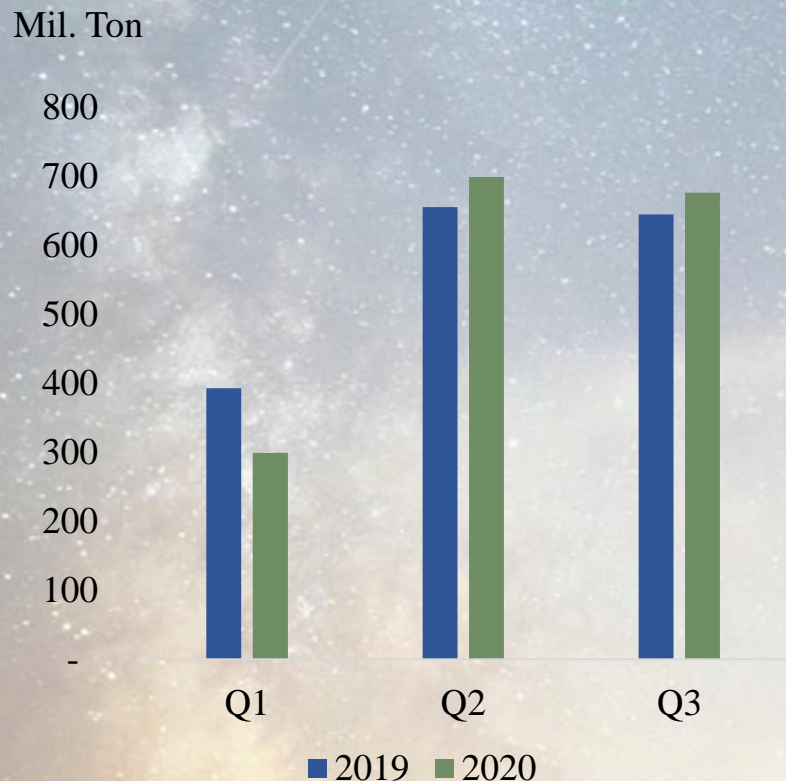


Taichung Top 1 Global Trade Center
Strength: 10,000PSI

Mainland China Cement Market: Supply & Demand

Cement Sales Volume 2019 vs. 2020

Exception: Q1 Affected by COVID-19
 2020 Cement Sales Volume Exceeded 2019



Demand

	%	Amount (2020Q1-3)
1. Investment in Fixed Assets	+0.8%	42.65 Trillion RMB
2. Investment of Real Estate	+5.6%	10.35 Trillion RMB
3. Floor Space of Real Estate Under Construction	+3.1%	8.598 Billion M ²

Supply

Official Policy*

1. Continue to **ban new capacity**
2. **Modify cement capacity swap rules**
3. Deploy **off-peak production stoppage after 2020**
4. Exert **industry association influence**

Mainland China 14th Five-Year Plan and Policy

Economic Target: Construct new development structure and uphold domestic demand expansion

- Policy:**
1. Centralized planning in promoting infrastructure
 2. Deploy agricultural housing construction actions
 3. Expand room for investments

Emission and Carbon Reduction Targets:

Carbon dioxide emissions aim to reach peak before 2030, and achieve carbon neutrality before 2060

- Policy:**
1. Continue to reduce emission of major pollutants;
Reduce carbon emissions steadily after reaching peak
 2. Accelerate construction of national carbon trading market
 3. Enhance environmental monitoring and inspection capabilities

十九届五中全会公报

人民日报

二〇三五年基本实现 社会主义现代化远景目标

- 我国经济实力、科技实力、综合国力将大幅跃升，经济总量和城乡居民人均收入将再迈上新的台阶，关键核心技术实现重大突破，进入创新型国家前列；
- 基本实现新型工业化、信息化、城镇化、农业现代化，建成现代化经济体系；

十九届五中全会公报

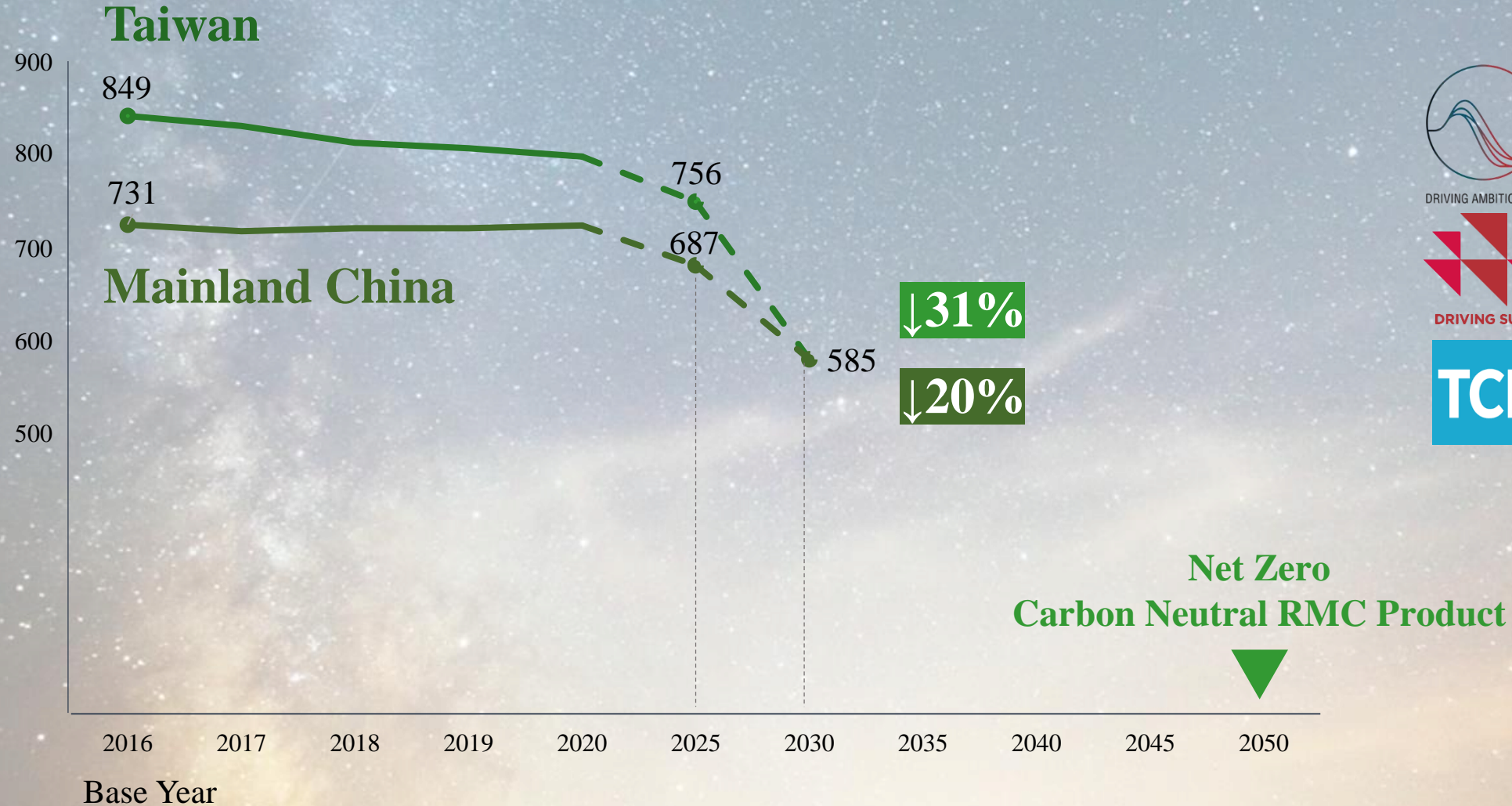
人民日报

“十四五”时期 经济社会发展主要目标

- 生态文明建设实现新进步，国土空间开发保护格局得到优化，生产生活方式绿色转型成效显著，能源资源配置更加合理、利用效率大幅提高，主要污染物排放总量持续减少，生态环境持续改善，生态安全屏障更加牢固，城乡人居环境明显改善；

TCC Group's Roadmap to Carbon Neutrality

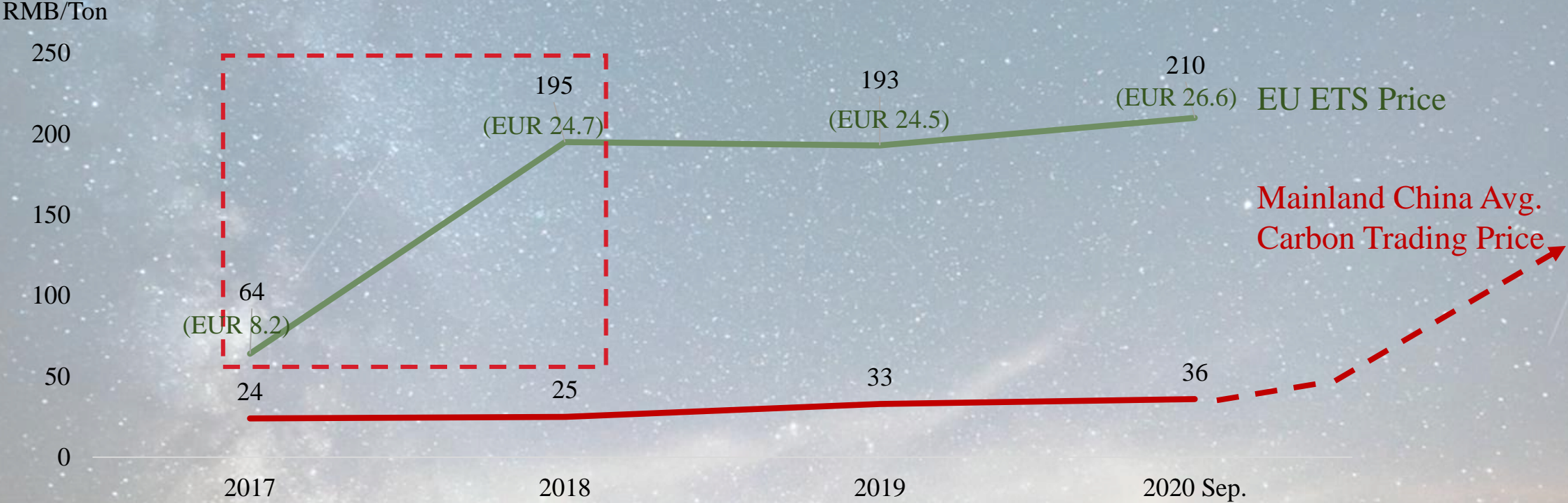
Unit: KG CO₂/Ton of Cementious Material



Carbon Reduction Action Plan 2020-2030

Segment	Project
Energy	<ul style="list-style-type: none"> • 500MW renewable energy under management • Waste heat recovery to reduce procured electricity by 33%-35% • Rotary kiln and cement mill energy saving technology enhancements
Material	<ul style="list-style-type: none"> • Waste Treatment/Resource Recycling: 10 million tons in 2025 • Alternative Material: Calcium fluoride sludge, steel slag, recycled pellets, calcium carbide slag, non-ferrous metal ash and coal ash...etc.
	<ul style="list-style-type: none"> • Clinker Replacement: Mineral powder, coal ash and nickel ballast powder...etc.
Fuel	<ul style="list-style-type: none"> • Biomass Fuel Target: 10% by 2025 • Full Biomass: Wood chips, tree barks, and other agricultural wastes (such as rice straws and husks) • Part Biomass: Waste tires, SRF (RDF), waste rubber products and sludge...etc.

Carbon Trading Market



EU Emissions Trading System (ETS)

- 1. Announced Market Stability Reserve (MSR) program to buy up excess quota and increased price in 2017
- 2. Accelerated reduction of total emissions and expanded industry coverage
- 3. IMF suggests G20 countries' carbon tax should be US\$27/ton

Mainland China Policy

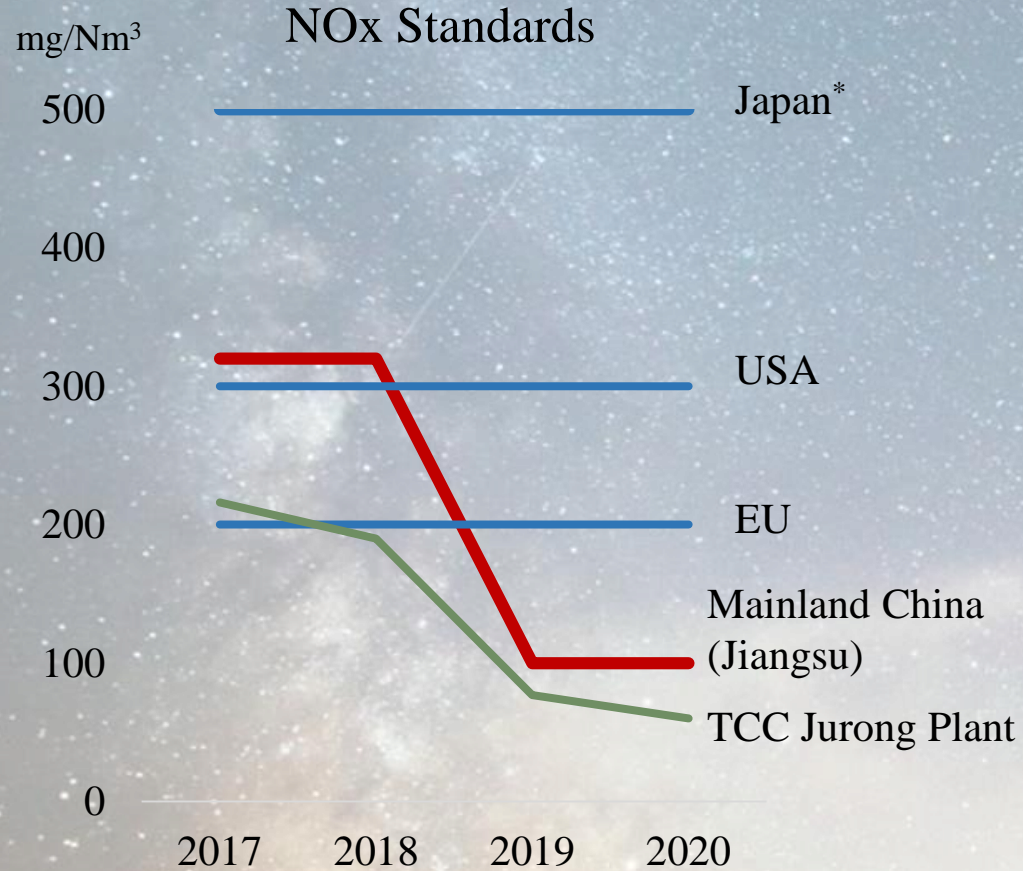
- 1. Accelerate construction of national carbon trading market
- 2. Enhance environmental monitoring and inspection capabilities

Source: Bloomberg, EU ETS, average price of six Mainland China carbon trading markets, EUR:RMB = 7.89 (as of 2020/10/20), State Council of the People's Republic of China, *Fiscal Monitor How to Mitigate Climate Change, 2019/10, IMF*

EU Carbon Trade and Carbon Tax

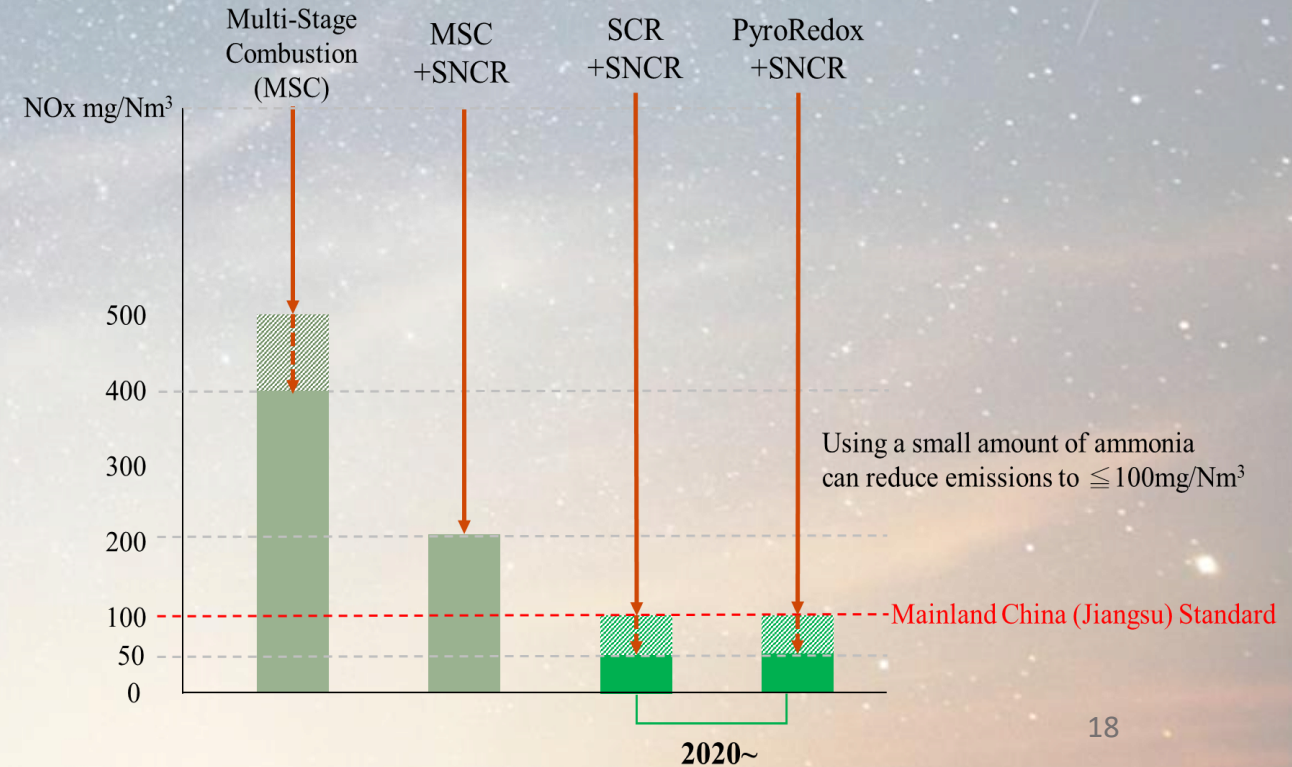
	Carbon Trade	Carbon Tax	Carbon Border Adjustment Mechanism (Under Discussion)
Method	<ul style="list-style-type: none"> • Set total emission volume • Allocate emission quota • Use market mechanism to buy/sell carbon quotas 	<ul style="list-style-type: none"> • Tax by emission volume 	<ul style="list-style-type: none"> • When domestic carbon emission regulations are tougher: increase cost of imported goods or provide tax breaks or subsidies to exported goods
Advantage	<ul style="list-style-type: none"> • Market mechanism decides the best carbon quota price 	<ul style="list-style-type: none"> • Simple taxation procedure 	<ul style="list-style-type: none"> • Prevent “carbon leakage” (industry moving away)
Disadvantage	<ul style="list-style-type: none"> • Price can be volatile due to economic conditions 	<ul style="list-style-type: none"> • Less incentive to reduce emissions • Tax rate may not reflect real-time economic condition 	<ul style="list-style-type: none"> • EU ETS may provide extra carbon rights for importers to purchase and this may affect the operations of the current scheme
Effects on Cement Industry	<ul style="list-style-type: none"> • Cement industry is currently under the carbon trading system, hence is not included under carbon tax coverage 		<ul style="list-style-type: none"> • Under discussion, may affect the cement industry

NOx Standard and TCC Action Plan



TCC Action Plan
 Current: SNCR+ Multi-Stage Combustion + Smart Monitoring

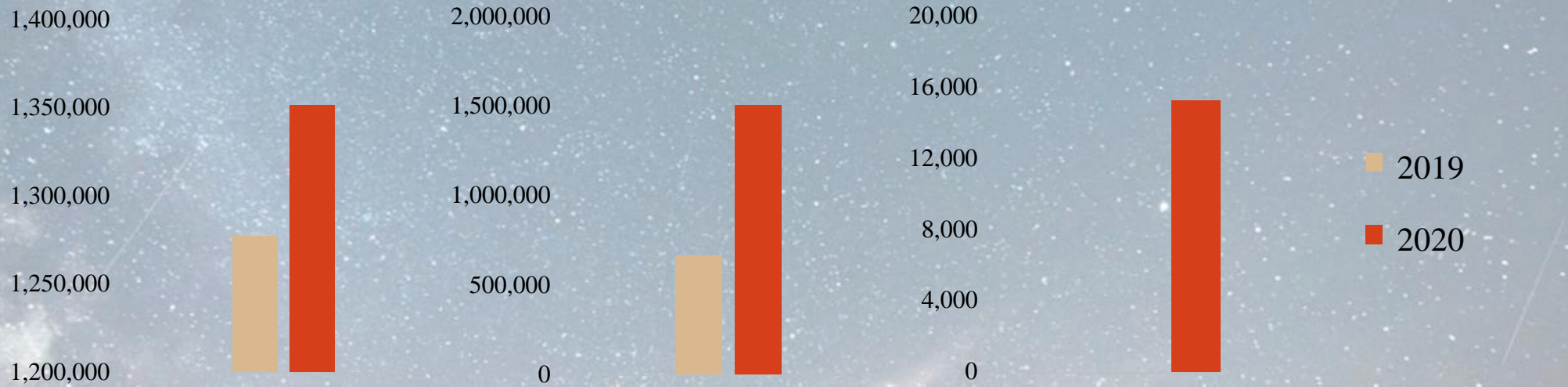
Planning: SCR + PyroRedox



*Converted from PPM

Waste Treatment

Unit: Ton



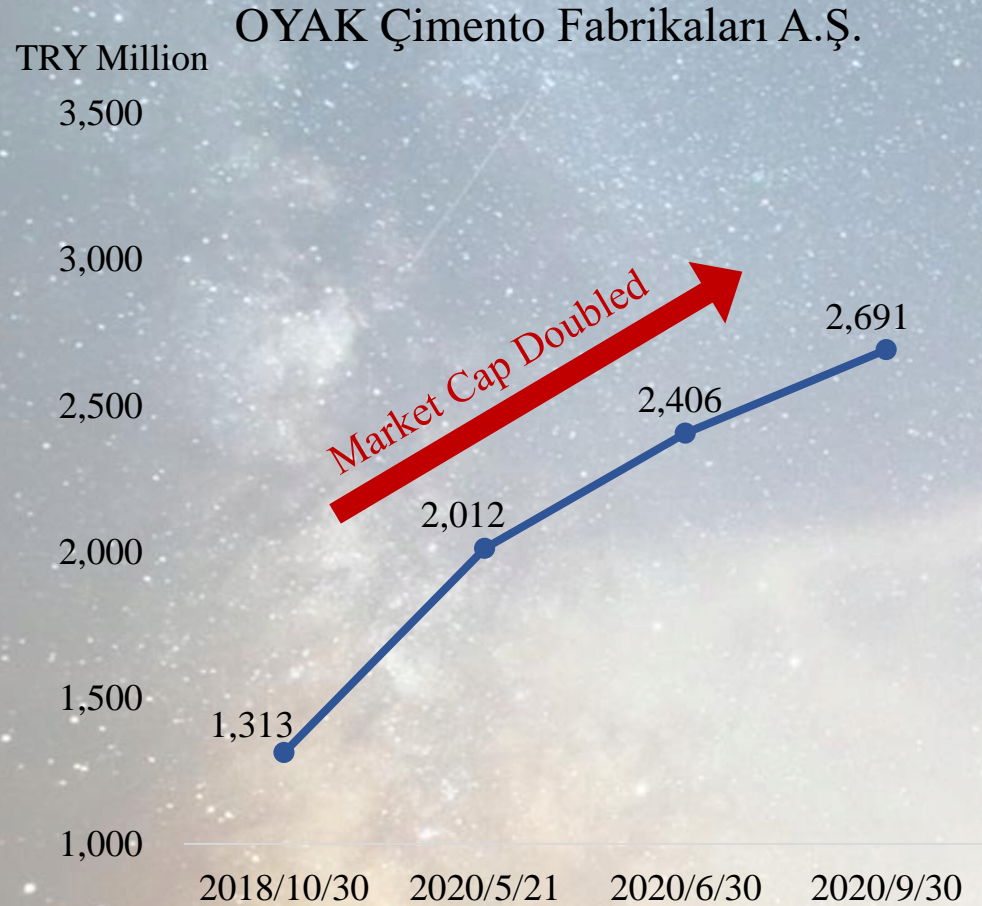
	Household		Industrial		Toxic		Total
	2019Q1-3	2020Q1-3	2019Q1-3	2020Q1-3	2019Q1-3	2020Q1-3	2020Q1-3
Taiwan	1,230,712	1,302,380	603,861	749,299	-	-	2,051,679
Mainland China	46,461	48,937	56,457	78,963	-	15,261	143,161
Total Volume	1,277,173	1,351,317	660,318	828,262	-	15,261	*2,194,840



1. Reduce CO₂
2. Lower Costs

*Including other industrial wastes such as desulfurization gypsum and coal ash...etc, total waste treatment volume exceeded 6 million tons.

Turkey Investment



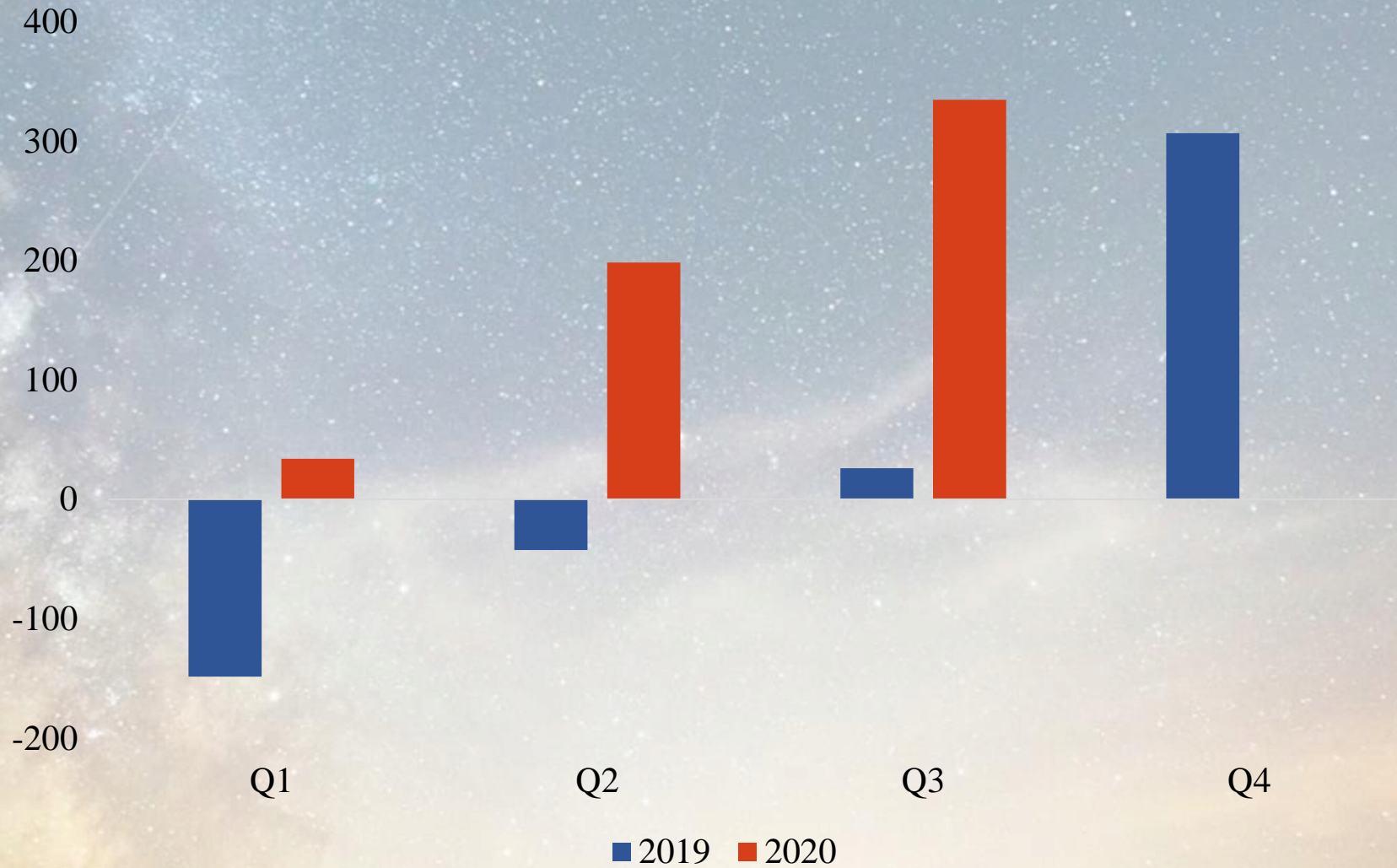
Timeline

- 2018/11 TCC and OYAK formed JVC, Dutch OYAK TCC Holdings B.V.
- 2019/08 JVC acquired Cimpor Portugal
- 2019/11 JVC changed name to Cimpor Global Holdings B.V.
- 2020/05 Five public companies under the JVC subsidiary, OYAK Çimento, merged into one public company, OYAK Çimento Fabrikaları A.Ş, through share swap based on revaluation of net value, OYAK Çimento shares grew from 61.72% to 73.25%
- 2020/08 Côte d'Ivoire grind mill construction completed

Turkey + Portugal

Unit: NTD Million

OYAK & Cimpor Net Income (TCC Share)



Turkey & Portugal Cement Demand Growth under COVID-19

Unit: Million Tons

Demand	Turkey			Portugal		
	2019Q1-2	2020Q1-2	YoY	2019 Q1-3	2020 Q1-3	YoY
Infrastructure	11.69	11.63	-1%	0.08	0.06	-25%
Housing	7.52	9.34	24%	0.66	0.74	12%
Commercial	1.02	1.46	43%	1.47	1.59	8%
Others	1.37	0.78	-43%	0.42	0.56	33%
Total	21.60	23.21	+7%	2.63	2.95	+12%

Turkey Cement Market Undergoing Consolidation

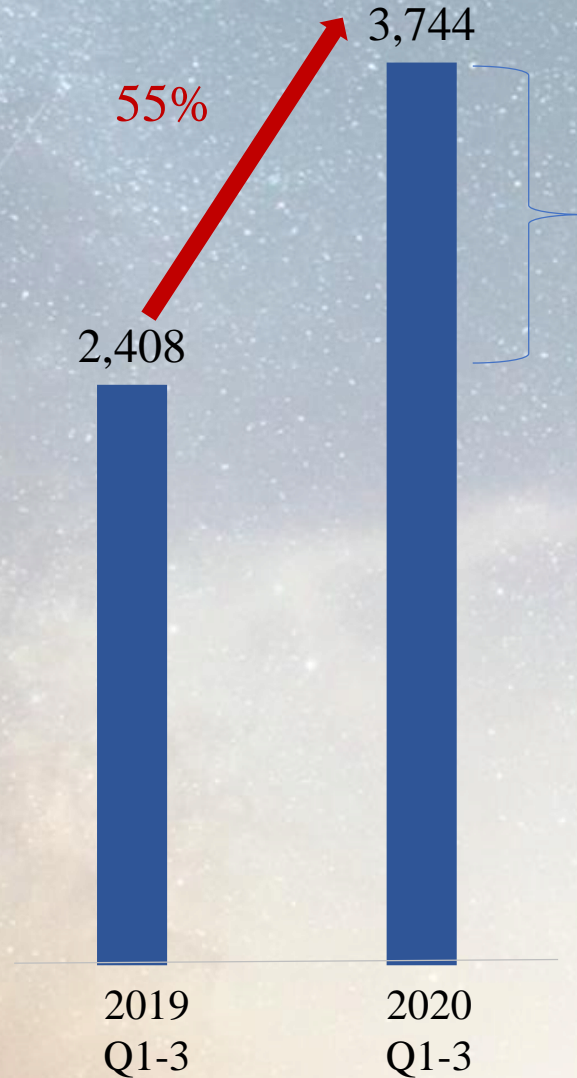


The Future of Turkey
Cement Market

Hoping Power

Unit: NTD Million

Net Income (TCC Share)



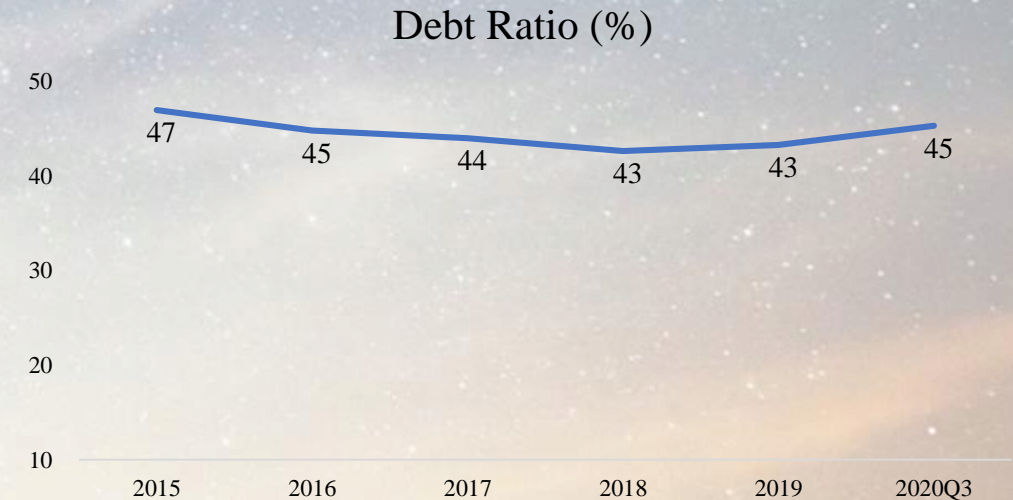
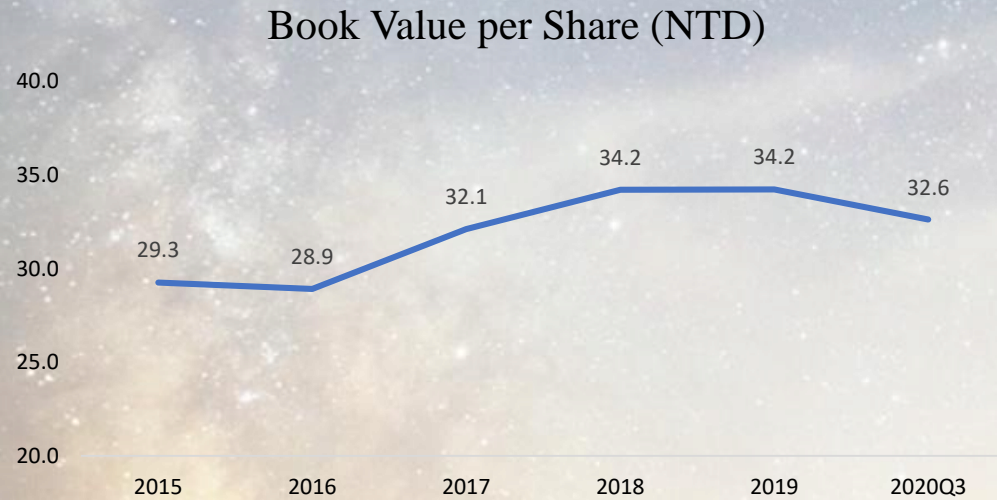
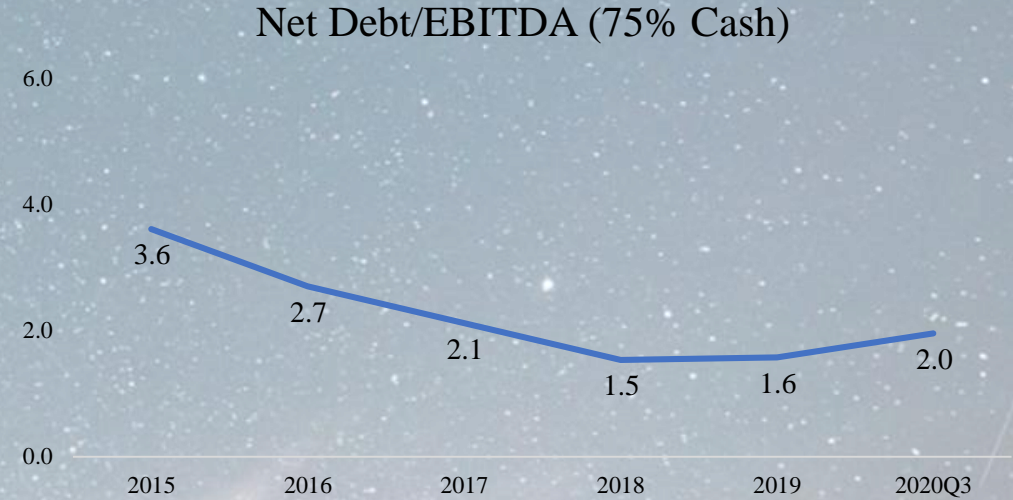
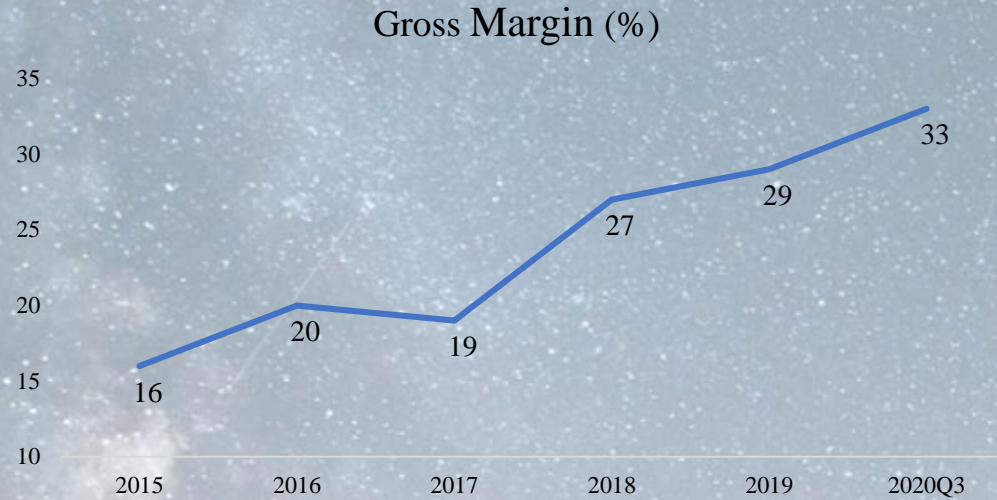
1. International Coal Price Dropped in 2020 Q1-3
2. Operating Hours Increased by 14% YoY

TPCC Tender and Public Listing Termination

Reason	Timeline
1. TPCC suffering from net losses	Nov. 5, 2020 TPCC EGM passed share swap
2. Chemical segment is not TCC's main business	Nov. 6, 2020 TPCC applies termination of public listing

3. Public offering termination can increase flexibility in future adjustments	Dec. 2020 TPCC applies termination of public offering
	Jan. 18, 2021 TCC and TPCC complete cash share swap
	Jan. 23, 2021 TCC makes payment for cash share swap

Financial Ratio



EPS and Dividend Policy

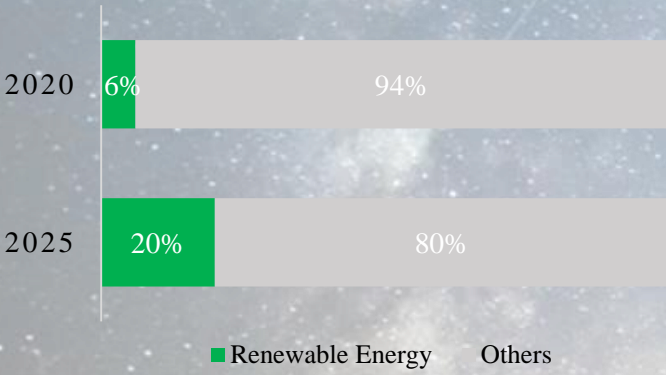


TCC Cash Dividend Payout Ratio Policy: 75% ± 5%
(Exception: COVID-19)

TCC Renewable Energy Development

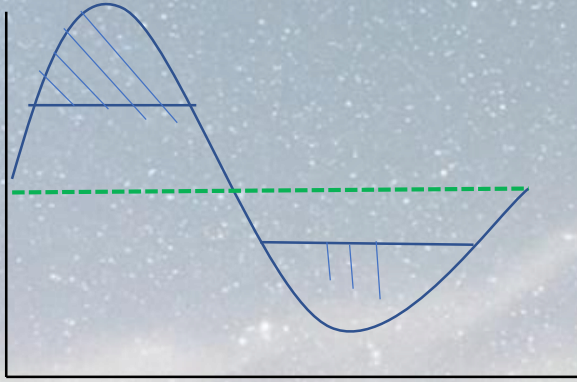
Policy

2025 Renewable Energy Share
6% → 20% (27GW)



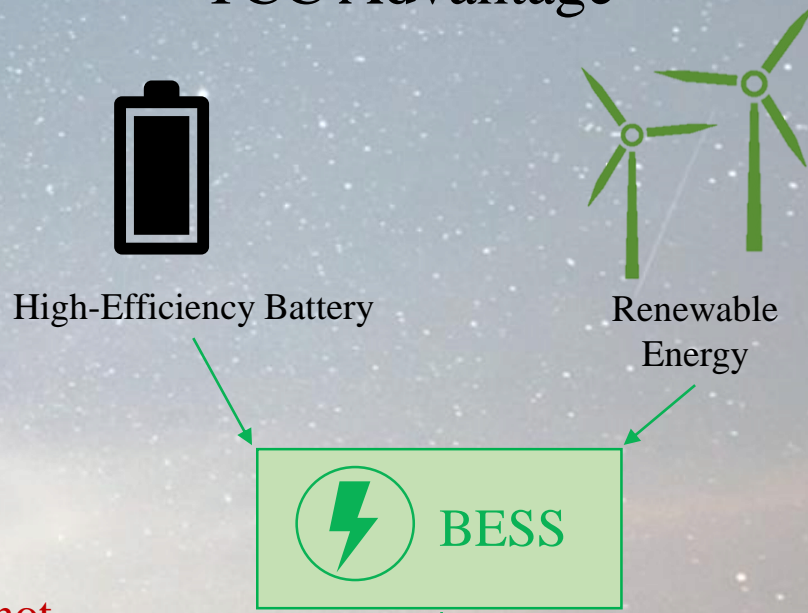
ESS

Stable Grid



Development

TCC Advantage

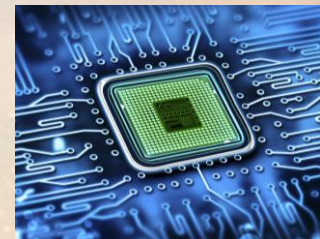


TCC Green Energy (Total:176MW)

	On Grid	Constructing	Planning
Solar	14MW	44MW	79MW
Wind	21MW	-	11MW
Geothermal	-	-	2MW
Energy Storage AFC	-	5MW	-

1. Without ESS, renewable energy cannot become baseload energy
2. Battery Energy Storage System (BESS) to provide grid stability

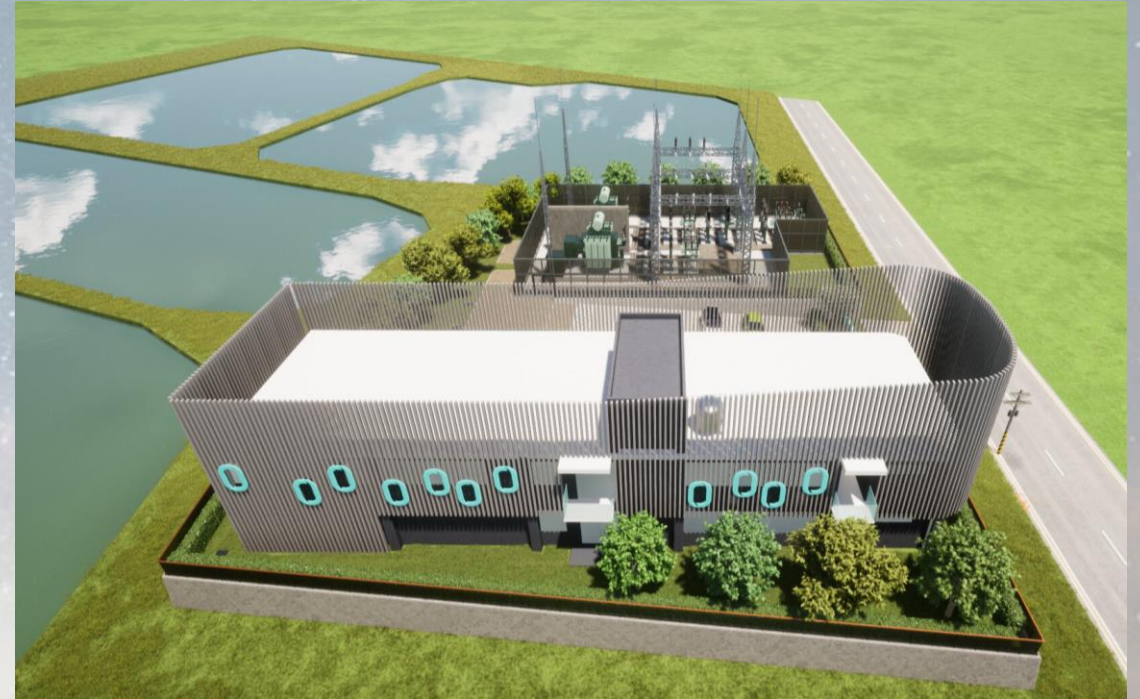
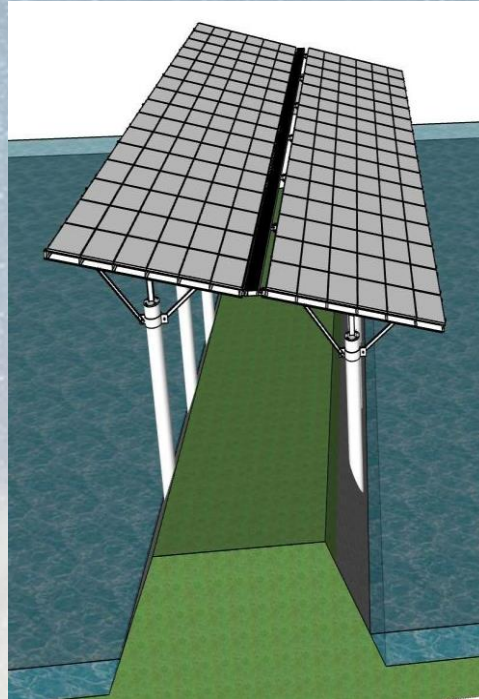
Pure Green Energy



RE100

Fishery + Solar

1. Chiayi Yizhu/Budai Fish Farm
Solar Power Project
2. Total Power Generation: 43.4MW
3. Surface: 60.99 Hectares
4. Completion: Scheduled
commercialization in 2021



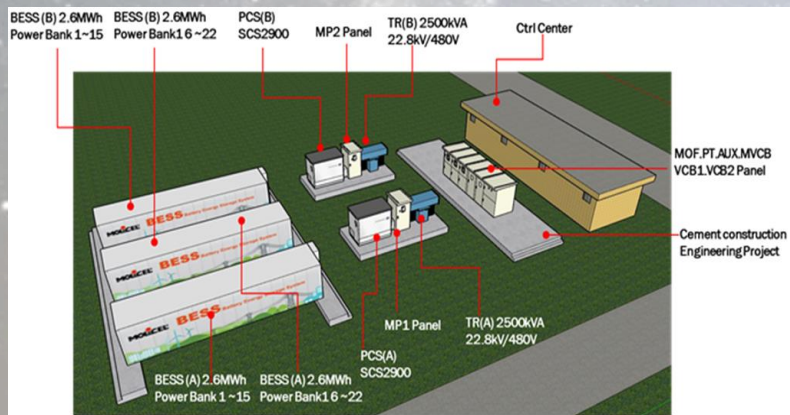
▲ Booster Station

Taitung Geothermal



Green Energy AFC (Automatic Frequency Control)

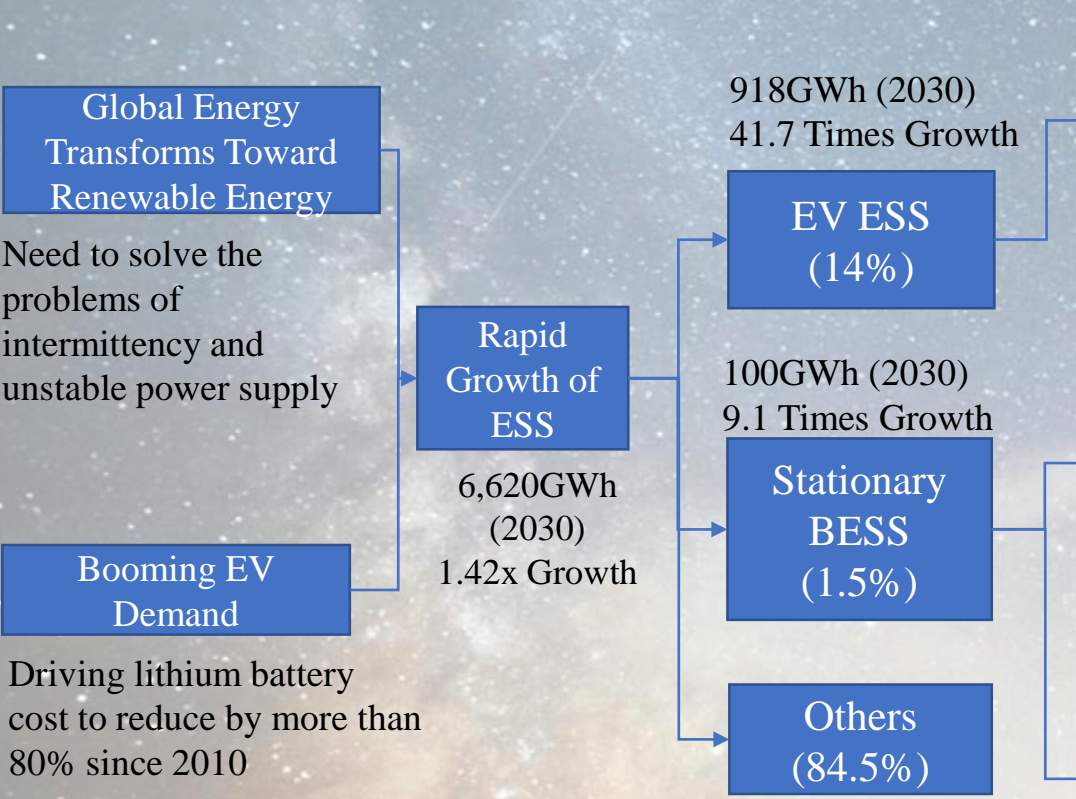
1. **Commencement:** Obtained Taipower's AFC Frequency Adjustment Assistance Service Project on July 5th, 2020
2. **System:**
 - (1) Automatically adjusts electricity system frequency, helping to divert current power generator allocation pressure
 - (2) Stabilizes renewable energy supply, reduces air emissions and power generation costs
3. **Installation Capacity:** 5MW (Largest capacity in a single lot under construction in Taiwan)
4. **Commercialization:** Scheduled to be on grid by end of April 2021



Energy Storage System Blueprint

Without ESS, Renewable Energy Cannot Become Baseload Energy

Market Drivers and Growth Forecast



TCC Opportunities

- EV Battery Applications
 - Electric car, super car, heavy motorcycle
 - Air taxi
 - Electric bus
- Grid-level ESS
 - Frequency/voltage regulation
 - Operating reserve
 - Black Start
 - Transmission/Distribution Investment Deferral
- Residential/Commercial/Industrial ESS
 - Self-consumption solar power
 - Demand charge reduction
 - Backup power for plants (UPS)

56GWh(2030)

TCC Strengths

- One of few enterprises that can manufacture energy harvesting system, energy storage, self-critical components (battery cell), manage green energy farms, and provide complete ancillary services.
- TCC Green Energy, 100% Owned by TCC, is one of the few domestic companies who owns both large-scale wind and solar power farms.
- E-One Moli is the largest domestic lithium-ion cell manufacturer in Taiwan that can produce ternary lithium battery, develop in-house battery management system, and has experience of grid-connected ESS.

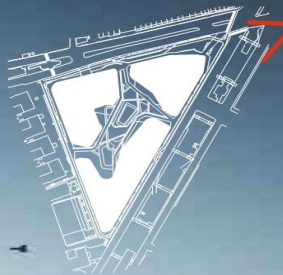
E-One Moli Energy Won Taipower Automatic Frequency Control (AFC) ESS Tender with TCCGE

Source: IRENA (2017), *Electricity Storage and Renewables: Costs and Markets to 2030*, International Renewable Energy Agency, Abu Dhabi.



Reclaimed Land Projects

Old Keelung Road Site → Green Office + Low Carbon Senior Homes (Under Planning)



Old Zhudong Plant Site (Under Planning)

Zhudong TCC Park



Old Kaohsiung Cement Plant Site (Under Planning)



Project by
SPAGNULO
& PARTNERS
architecture & interiors
all rights reserved © 2018 SpagnuloPartners



ESG

TCC's Practices

TCC DAKA CEM recognition rate increased

BAP Land Restoration

Change in CO₂ Emissions

DOING BETTER TOGETHER

Reduction in NOx

Social Welfare Contributions

Funding Spent on Education & Training

Reduction in SOx

Reduction in Cement Plant Water Use



TCC Group MSCI ESG Rating Targets and Strategies



GHG Management	
<ul style="list-style-type: none"> Taiwan CO2 Reduction Target (SBTi) 2025 -11% 	<ul style="list-style-type: none"> CO₂ Reduction Mid-Long Term Targets: Taiwan 2030 -31% Mainland China 2030 -20% TCC Group 2050 Carbon Neutral RMC Product CO₂ Emission Intensity Targets: 2030 585kg CO₂/Ton of Cementious Material
<ul style="list-style-type: none"> Taiwan's First Cement Carbon Label 	
Environment Management	
<ul style="list-style-type: none"> Cement plants obtained ISO 14001 and ISO 45001 Environment Certification Constructed new Taipei and Hsinchu flagship zero emission environmental RMC plants 	<ul style="list-style-type: none"> All cement and RMC plants obtain ISO 14001 and ISO 45001 Environment Certification 100% cement plants completed water footprint verification, 100% water recycling 100% of plants are new zero emission environmental RMC plants
Air Emissions and Waste Treatment/Resource Recycling	
<ul style="list-style-type: none"> Alternative Fuel Target: 10% biomass by 2025 Set mid-long term reduction targets for NO_x 、SO_x 、TSP 	<ul style="list-style-type: none"> Alternative Fuel Target: 30% by 2030

TCC Group MSCI ESG Rating Targets and Strategies



Energy Management

- Waste heat recovery reduced 1/3 of electricity use of cement plants
 - 100% passed ISO50001 Energy Management Certification
 - Renewable energy installations reach 500MW
- **Commit to EP100**
 - Moving towards **RE100**

Innovative Technology

- Calcium Looping Carbon Capture Technology (CCS)
- Capture **450,000 CO₂** per year in 2030
 - **R&D new low-carbon cement products**

Biodiversity

- Native species share to reach 83% in 2025
- Native species share to reach above 90% in 2030
 - Achieve 95% biodiversity goal in 2030
 - Set environment management department
 - Business For Nature Partner

TCC Group MSCI ESG Rating Targets and Strategies



Labor Management

- | | |
|---|---|
| <ul style="list-style-type: none"> • Employee Stock Trust Plan • Employee Engagement Survey | <ul style="list-style-type: none"> • Plan employee stock option (ESO) program • Retired Employee Care Plan |
|---|---|

Health and Safety

- | | |
|--|--|
| <ul style="list-style-type: none"> • Set mid-long term targets for occupational injury rate | <ul style="list-style-type: none"> • Groupwide zero injury workplace • H&S audit plan covers 100% of suppliers and contractors • AI smart management system covers 90% of plants |
|--|--|

Community Rejuvenation

- | | |
|--|--|
| <ul style="list-style-type: none"> • Hualien Hoping TCC DAKA Open Eco Factory
Jan.-Oct. 2020: 2.08 million visitors
~7,000 guided tour participants | <ul style="list-style-type: none"> • Hualien Hoping: Construct “DAKA Renewable Resources Center” in 2 years • Yilan Aohua: Hanben Ocean Station Plan |
|--|--|

TCC Group MSCI ESG Rating Targets and Strategies



Corporate Governance	
Employee Performance	
<ul style="list-style-type: none"> Employee salary links to sustainability performances 	
Board of Directors Committees	
<ul style="list-style-type: none"> Established Risk Management Committee Established Corporate Sustainable Development Committee Established Information Security Committee 	
Finance	
	<ul style="list-style-type: none"> Adopt groupwide practice in line with ISO 37001 anti-bribery management system Adopt groupwide TCFD structure
Board Structure	
	<ul style="list-style-type: none"> 1/3 of board members are independent Board members with accounting and legal expertise

TCC DAKA Open Eco Factory (Phase 1)



▲ 台泥DAKA一期園區

4
3

TCC DAKA Open Eco Factory

(Phase 2: Under Construction, Phase 3: Under Planning)



Yilan Aohua Hanben Beach (S: Social Engagement, Community Rejuvenation)



TCC Group Carbon Reduction Efforts (Non-Manufacturing)



Effort	Reduction
Solar Power Taipei HQ Rooftop Yilan Taibai Mt. Kaohsiung RMC TCC DAKA	Reduce 87 tons of CO ₂ /year
Green Supply Chain	2023: 100% supplier GHG inspection 2030: Suppliers reduce 50% of CO ₂
Digitalized Administration System	Reduce 14,000 kg CO ₂ /year
HQ Building Energy Saving	Reduce 5.3% energy usage/year Reduce 78.4 tons of CO ₂ /year
Procurement Portal	Reduce 12 tons of CO ₂ /year
Smart Warehouse	Reduce 50 kg of CO ₂ /year



Total: 191 Tons CO₂/Year



Join Us in Carbon Reduction, Thank You!

Disclaimer

The forward-looking statements contained in this presentation are subject to risks and uncertainties and actual results may differ materially from those expressed or implied in these forward-looking statements.

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