



Climate Strategy and Roadmap

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Aim

- To suggest a 2020-2030 Climate Strategy that guides EGCO Group's business decisions towards becoming a climate-resilient and sustainable company.
- To recommend strategic focus and crucial activities that lead to an achievement of GHG target and fulfillment of key components of excellent climate change management
- To outline a sequence of activities and interim targets throughout 2020-2030 period

Methodology

1. Analyze the results from climate risks and opportunities workshop, executive interviews, key components of excellent climate change management and peer's climate performance review, scenario analysis and GHG target setting
2. Identify the most reasonable GHG reduction pathway, potential innovative businesses as well as enabling activities that will help EGCO Group realize excellent climate change management based on EGCO Group's input, trend research and peer companies
3. Engage with executives through Climate Strategy Workshop to collect opinions and suggestions
4. Analyze and integrate all considerations into final proposed Climate Strategy and construct a Roadmap for 2020-2030 period

EGCO Group 2030 Climate Strategy

Vision: “Accelerating energy transition towards low carbon society with exceptional innovation”

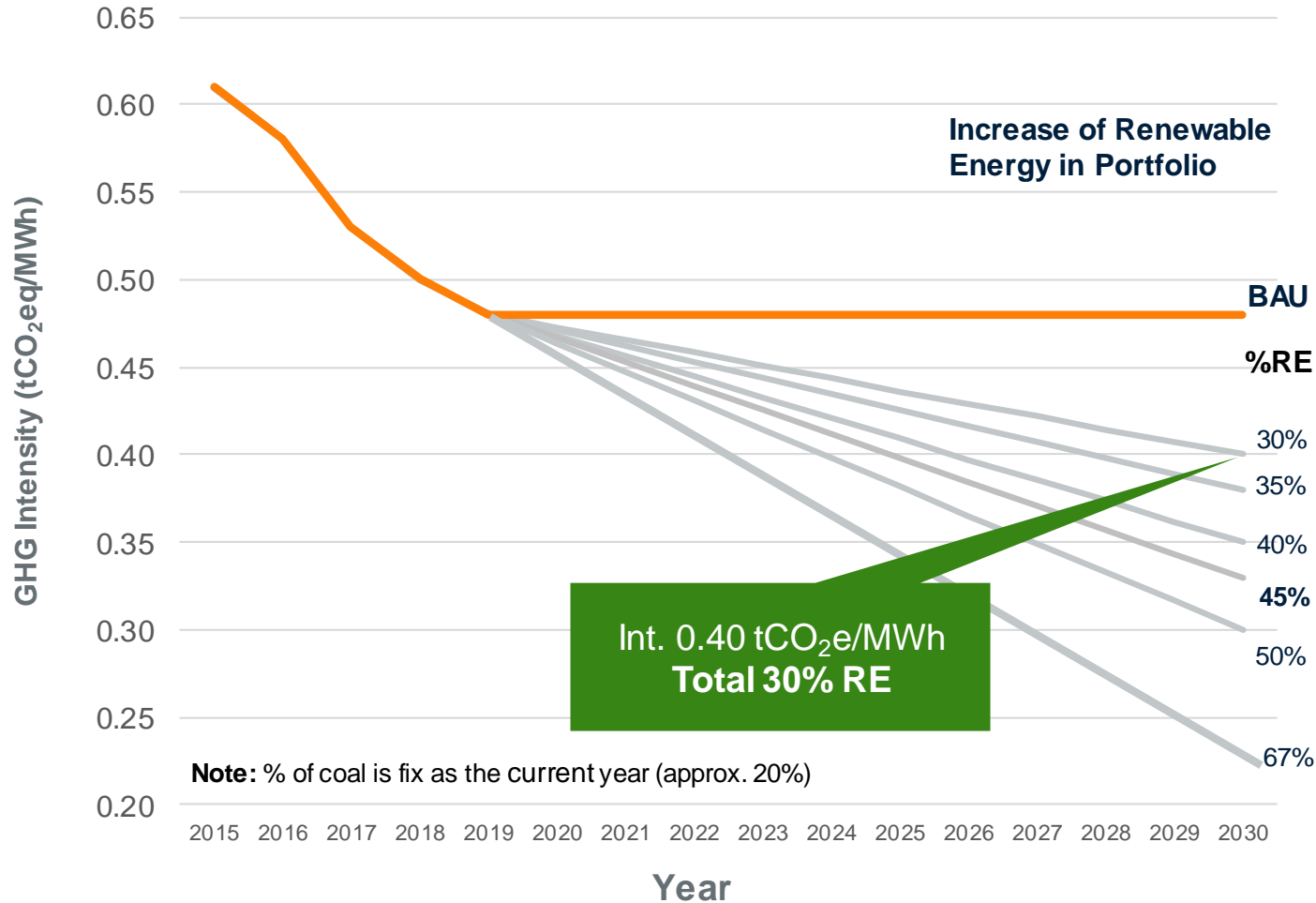
EGCO Group 2030 Climate Strategy

Resilient Portfolio	Innovative Businesses	Enabling Programs
<ul style="list-style-type: none"> Increasing renewable electricity generation Phasing out carbon-intensive electricity generation 	<ul style="list-style-type: none"> Increasing revenue from low carbon businesses Promoting decentralized renewable generation Contributing to Smart Grid and Smart city 	<ul style="list-style-type: none"> Enhancing internal climate risk and opportunity management with carbon price Promoting capacity building and stakeholder engagement Building climate reputation
<p>Target:</p> <ul style="list-style-type: none"> 30% Installed capacity of renewable energy GHG intensity 0.435 tCO₂e/MWh 	<p>Target:</p> <ul style="list-style-type: none"> 20% Revenue generation from innovative products/services 	<p>Target:</p> <ul style="list-style-type: none"> CDP A-List member 100% Best Available Technology in thermal power plants KPIs & Targets available for capacity building and engagement programs

Goal 2030: Decarbonizing electricity generation and innovating low carbon businesses

Strategy 1: Resilient Portfolio

Increasing the mix of renewable energy in portfolio is necessary to align with SDS



Since GHG emissions are directly caused by electricity and steam generation from fossil-fuels, to achieve a resilient portfolio, EGCO Group should increase the portion of renewable energy to lower the overall GHG emissions.

In the figure, **at least 30%** installed capacity of renewables is required in EGCO Group's portfolio in 2030 in order to be in line with SDS for Southeast Asia.

This can be achieved by phasing out coal-fired power plants, maintaining natural gas capacity, and increasing renewable energy generation through solar, hydro, wind, geothermal, and biomass power plants.

Strategy 2: Innovative Businesses

Innovative businesses are new sources of revenue that help EGCO Group achieve economic success while aligning with the ultimate goal of B2DS. The diversification is vital to capture emerging market opportunities in power sector.

Business 1: Circular Product Services

Providing access to benefits of the equipment without owning it

Based on circular economy concept, this business allows customers to enjoy the benefit of equipment while EGCO Group takes care of its functionalities throughout lifetime and takes responsibility on its end-of-life management. For example, instead of selling solar PV, energy storage, smart meter, charging station, this business provides clean electricity, backup energy service, energy usage information and access to power for customers.

Business 2: Comprehensive Outsource Service for SPP/VSPP

Capitalizing on EGCO Group's expertise in energy production and management system to accelerate energy transition

With the rise of decentralized power generation, EGCO Group can be a trusted expert who helps SPP and VSPP in all steps from project development through operation and trading. Moreover, high market share of power plant operation service in the same area can further give EGCO an opportunity to generate income through secondary services such as energy supply aggregator.

Business 3: Energy Management Service

Transforming clients with smart technology

Assisting smart cities, industrial estates, commercial buildings, factories and residential estates in holistic energy management including energy efficiency improvement, renewable energy generation and consumption, sector coupling with green electrification, micro-/smart grid formation and overall cost reduction. All of these with the help of smart technology. This business can be developed in conjunction with Circular Product Services and will grant a strategic position for Green Mobility business for EGCO Group.

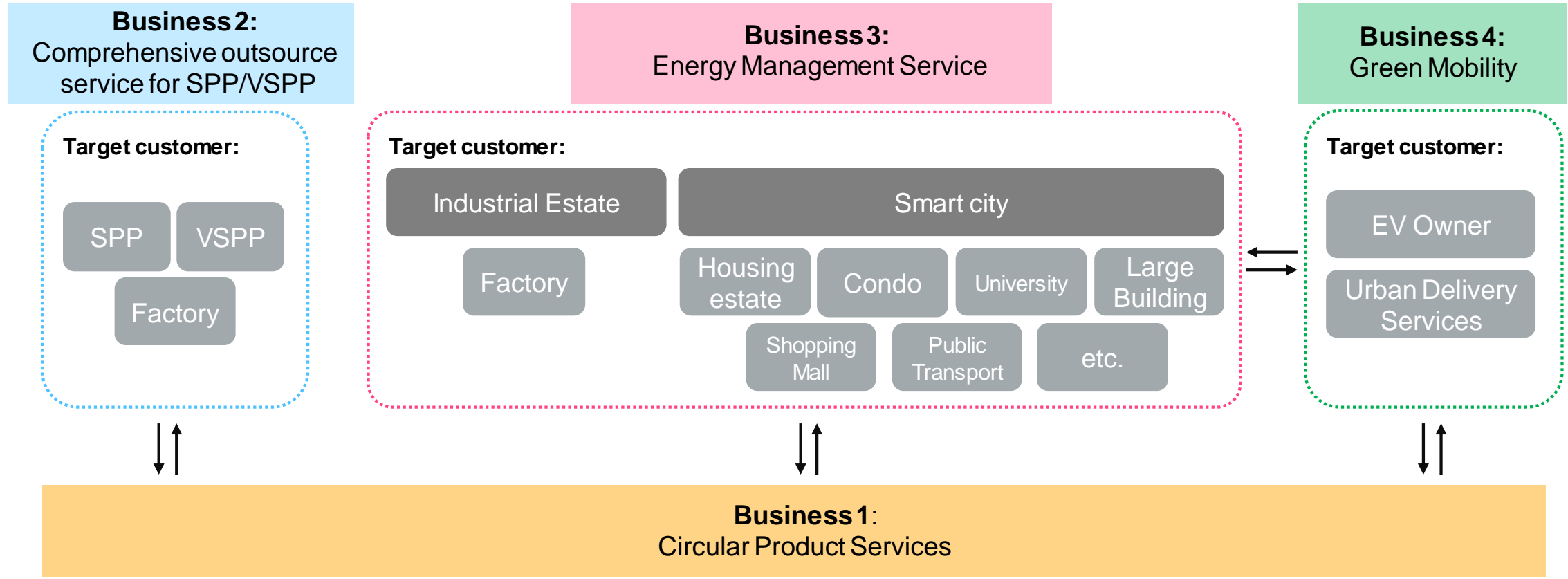
Business 4: Green Mobility

Powering urban private transportation and delivery service

Green Mobility business provides charging system for EV users in urban areas. Two types of charging system are considered, Stationary Smart Charging System where users park and charge their EV, and Swap-and-go System where batteries are exchanged on the spot without the need to wait for charging. This business opportunity can be extended in partnership with urban delivery service. Given the high competition, the success in this business is likely to depend on Energy Management Service business where EGCO Group already presents as the energy manager in smart cities, commercial buildings or residential estates.

Target Groups and Potential Synergies in Innovative Businesses

↔ = Potential Synergy



Leading to other future businesses such as 1) Load & Supply Aggregator 2) Businesses based on customer generated data

Strategy 3: Enabling Programs

Six enabling programs are selected to holistically help EGCO Group improve its performance in alignment with stakeholder’s expectations and fulfill various components of excellent climate change management.



Description of Enabling Programs (1/2)



Efficiency Improvement

- Investing in upgrading existing facilities to be in line with Best Available Technology (BAT) standards using hardware, information technology, human capital and management system
- Efficiency covers various climate-related aspects such as energy, GHG and water as well as other environmental aspects i.e. pollutants



Internal Carbon Price

- Carbon price refers to internal assumptions of the price of carbon that companies use as a planning tool to guide capital investment decisions and to help identify revenue opportunities, risks, or as a management incentive to reduce costs
- EGCO Group may begin with the most generally used type carbon price (i.e. shadow price) before evolving into other advanced and company-specific prices such as implicit carbon price and internal fee



Carbon Offset

- Carbon offset refers to verified carbon credits originated by other parties that are purchased in order to compensate company's emissions that does not align with the target
- Carbon offset is a tool to achieve carbon neutrality that is used by many companies worldwide

Description of Enabling Programs (2/2)



Climate Disclosure

- Responding to external stakeholder's expectation on transparency of climate change management
- Attracting ESG investors through TCFD disclosure
- Benchmarking performance against peers in CDP
- Having Scope 3 data collection process in place which can be verified and reported annually
- Earning reputation on climate change management through one of the most recognized disclosure scheme by becoming CDP A-List company



Stakeholder Engagement

- Building initiatives with external stakeholders i.e. suppliers, customers and other business partners to lower Scope 3 emissions.
- Participating with Policy makers (i.e. authority, UN), and Trade associations to drive climate agenda
- Funding research institutions to develop innovations in electricity generation, energy efficiency, smart grid and others.



Capacity Building

- Getting employees on board to understand implications of climate change i.e. risks and opportunities, stakeholder concerns, trends, processes and activities needed to achieve climate targets
- Fostering professional skills and knowledge among talents in order to develop innovative businesses and stay successful amidst evolving market demands and disruptive innovations.

Final Remarks and Limitations

- Proposed strategy and targets are determined based on the scope of 14 power plants accounting for 87% of EGCO Group's total revenue in 2019. The climate targets are suggested on percentage basis. Therefore, **the extension of this strategy and targets to cover other subsidiaries and joint ventures is possible on percentage basis.**
- External stakeholder expectations, components in excellent climate change management and proposed targets presented in this final report are subject to evolve over time. **Revision of their adequacy and timeliness is recommended** every two years or less, when a major event or significant change occurs to the company.
- **The results in physical scenario analysis should be used with caution** due to the limitation of high-level data source of climate models and evaluation tools. Site-specific vulnerability to flood and water stress should be further investigated taking into account existing mitigation measures and local physical and management contexts.
- While the current study on transitional risk's financial impact is based solely in Thailand, **the onset and stringency of climate regulation remain highly uncertain among countries in Southeast Asia and may vary across countries.** Thus, the actual impact on financial performance may be differed from the prediction in this study.

Further Recommendations

- To ensure success implementation of this strategy, ownership is among the first things to be set in place along with monitoring and reporting process. **A joint working team with representatives from relevant functions** is necessary to cooperatively drive climate change management process in the same direction with progress and performance systematically tracked.
- **Expansion of renewable capacity and innovative business development are the key to success of this strategy.** Hence, it is important to ensure that proper resources and managerial capacity are devoted on these. From this aspect, an innovative and technology-integrated power (e.g. energy storage system and prosumers-integrated) are recommended as part of business development to source the best available technology and provide the most environmental friendly energy.
- **Climate risks and opportunities assessment needs to be integrated into mainstream risks management and strategy process of the organization.** Not only existing facilities but also future projects should be included in the assessment to understand the impacts on climate strategy and targets. By doing so, it will also serve as a platform for future application of internal carbon price.
- **The additional climate-related performances from subsidiaries and joint ventures are recommended be collected in the same standard with EGCO group's corporate data collection** so that EGCO Group can derive meaningful insights and seamlessly incorporate all operations into future revision of Climate Strategy.