The Role of Oil and Gas Industry Towards Energy Transition – Strategies and Roadmap from Oil to Energy

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OUTLINE

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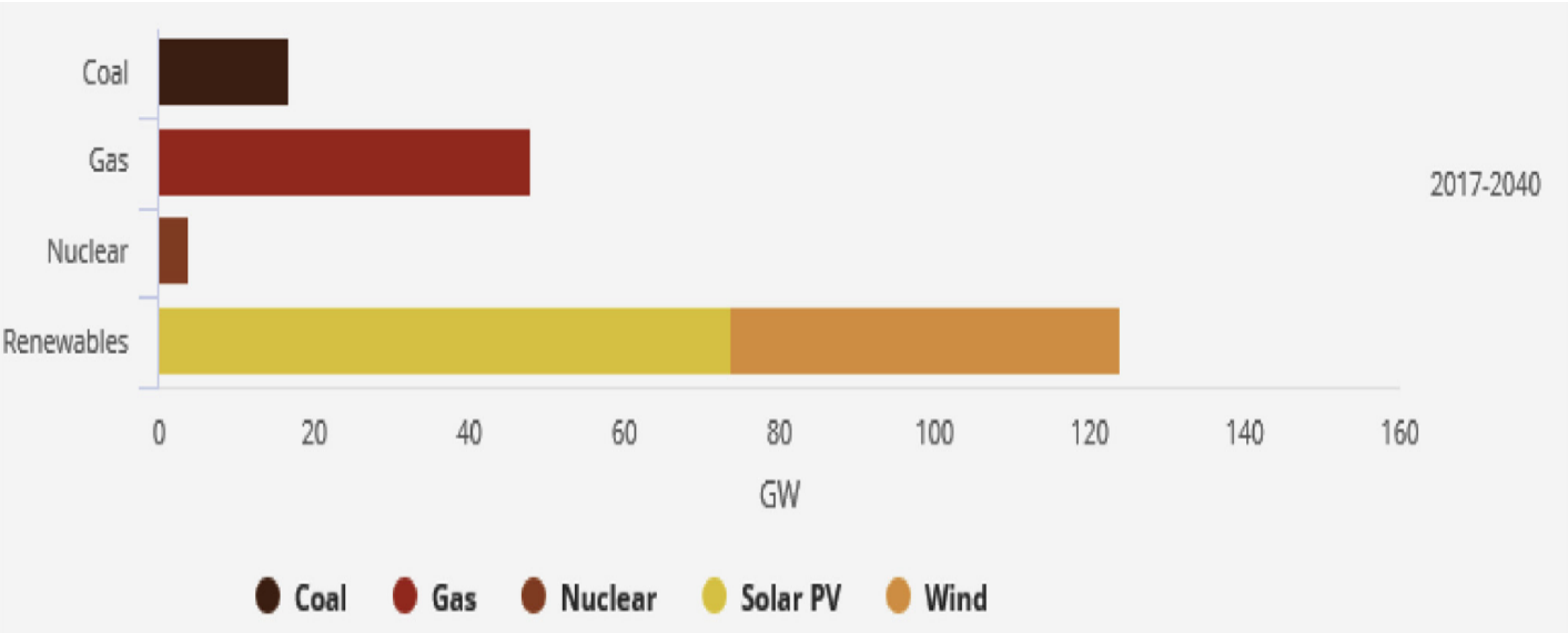
Introduction

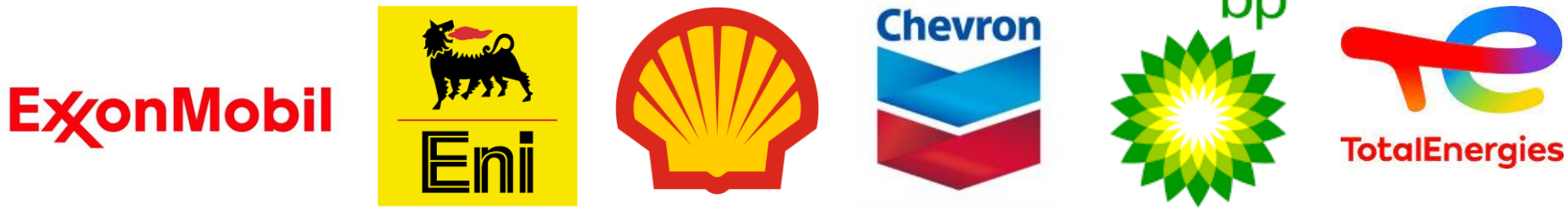
Power Capacity Additions by Fuel from 2017 to 2040

Source: https://www.iea.org/weo2017/



Introduction

Oil and Gas Company → Energy Company



Royal Dutch Shell

Powering Progress

- ***In May 2016**, announced a new energy division with an investment budget of $200 Million. "**Low Carbon and Renewables**".*

- ***In March 2017**, the budget was raised to $1 Billion and Hiked to $2 Billion in December 2017. "**About 80% will go into the power sector**".*

Royal Dutch Shell

In 2017,

Moved to the consumer power market by Acquiring:

1. ***First Utility, "UK-based electricity and gas supplier".***

2. ***New Motion, "Europe's largest electric vehicle charging company".***

Royal Dutch Shell

In 2018,

1. ***Invested in Silicon Ranch, US-based Solar Developer "Taking 44% stake with more than $200 Million" and agreed to increase its stake after 2021.***
2. ***Long-term power purchase agreement with British Solar Renewables. "Largest Solar farm in England".***
3. ***Invested $20 Million in Husk power system. "Indian-based company that provides renewables to rural communities in the African and Asian Markets".***
4. ***Deal to buy Texas Electricity Group MP2.***

Royal Dutch Shell

Finally,

Royal Dutch Shell invested in grid Edge and Energy Storage companies as:

GIEnergy

AXION energy

sonnen

Royal Dutch Shell

At the End of 2022,

- ***Operation emissions reduced by 30% compared to 2016.***
- ***Net carbon intensity reduced by 3.8% compared to 2016.***
- ***Invested $4.3 Billion in low carbon energy solutions "Biofuels, Hydrogen, Wind and Solar".***
- ***Invested $3.9 Billion in nonenergy products, which don't produce emissions from customer usage. "Lubricants and Chemicals" .***

Royal Dutch Shell

At the End of 2022,

- ***Produced 6.4 GW from Wind and Solar.***
- ***139,000 EV charging points " Owned and Operating".***
- ***4,000 Employees learned new skills about Energy Transition "Hydrogen Production, Carbon Capture and Energy Management".***

Chevron

Leverage our strengths to safely deliver lower carbon energy to a growing world

- ***In the beginning, it showed no interest in renewables due to its low returns.***
- ***It established a dedicated renewable energy presence focusing on:***

1. ***Solar project in 2000.***
2. ***Wind projects in 2014.***
3. ***Geothermal projects in 2016.***

Chevron

- *It committed to reduce emissions by improving energy efficiency, Flare Reduction, and methane leak fixation.*
- *Investing in two of the world's largest CO2 injection projects;*

1. *The Quest CCS project in the Canadian oil sands.*
2. *The Gorgon project in Australia.*

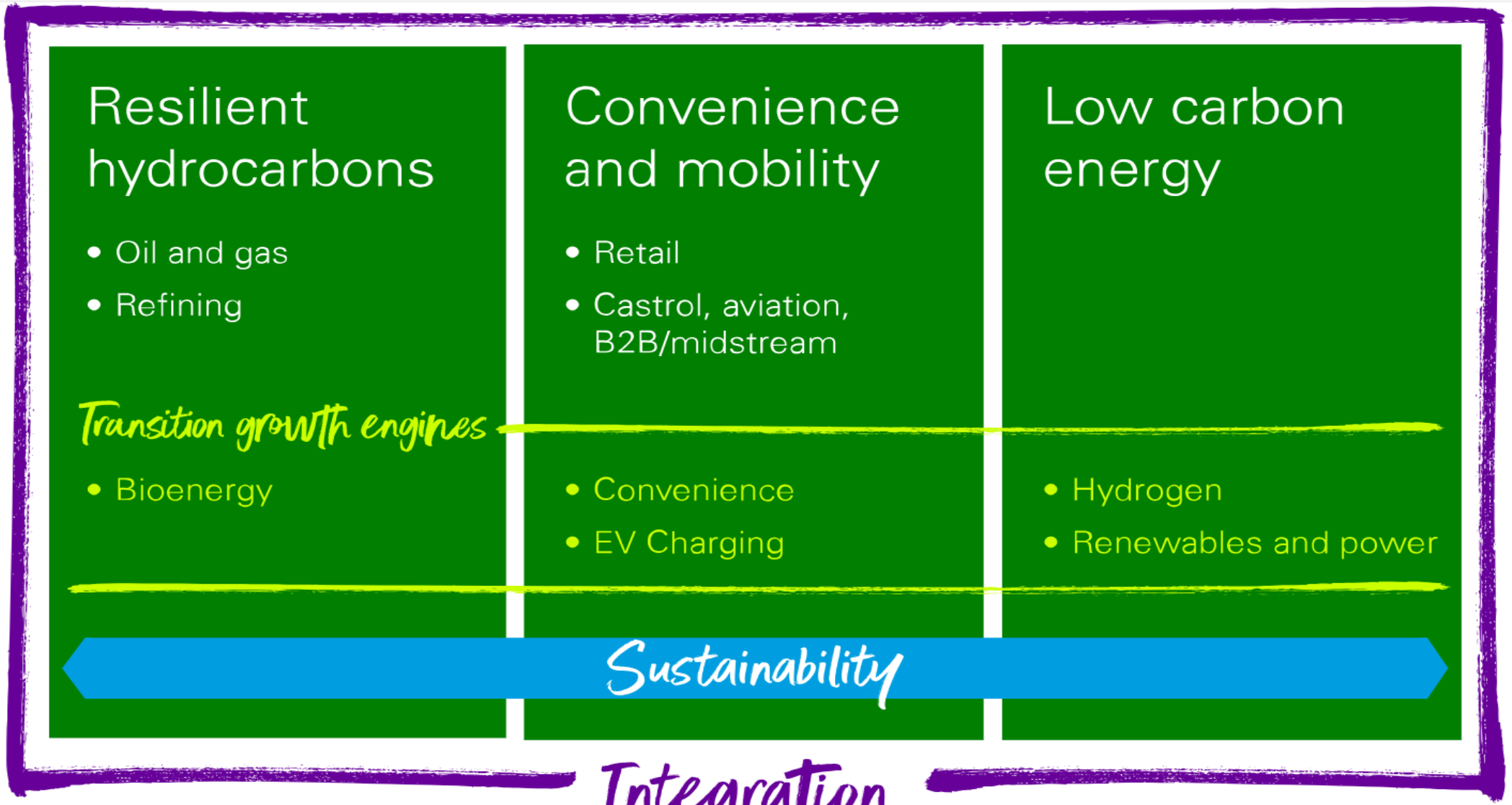
- *Investing $100 Million in breakthrough technologies to enable ongoing energy transition for energy source diversification.*

Chevron

Targets in 2028,

- ***Operation emissions reduction by 40%.***
- ***Methane Intensity reduction by 53%.***
- ***GHG flaring reduction by 66%.***

British Petroleum BP



British Petroleum BP

- ***The 1st oil major to commit significant capital to renewables since 1980.***
- ***Lost several Billion dollars for initial investing in renewables.***
- ***In 2001, it launched a $200 Million campaign to re-brand its name to highlight its vision towards energy transition.***
- ***In 2005, it established BP alternative energy for low-carbon activities.***
- ***Most of its green energy investments in this era have been written off.***

British Petroleum BP

- *In 2011, it exited the solar business.*
- *It has major onshore wind legacy assets in the US, a Biofuel business in Brazil, and a carbon capture and storage joint venture with Chevron.*
- *BP retains a gross generating wind capacity of more than 2200MW in the US. "The largest operated renewable energy business among all oil and gas peers".*
- *It prepared to spend $500 Million annual investment for a low carbon future.*

British Petroleum BP

Following Shell Steps;

- ***In 2017, it acquired 43% of the light source company for $200 Million "Europe's largest solar power developer".***

- ***In 2018, it made 3 investments for low carbon future;***

1. ***$20 Million in rapid charging batteries company.***
2. ***$5 Million in Free wire, "US company developing fast charging EV".***
3. ***$160 Million to Buy change master, "leading UK network of charging EV points".***

"Combined 6500 EV charging points with 1200 petrol station".

British Petroleum BP

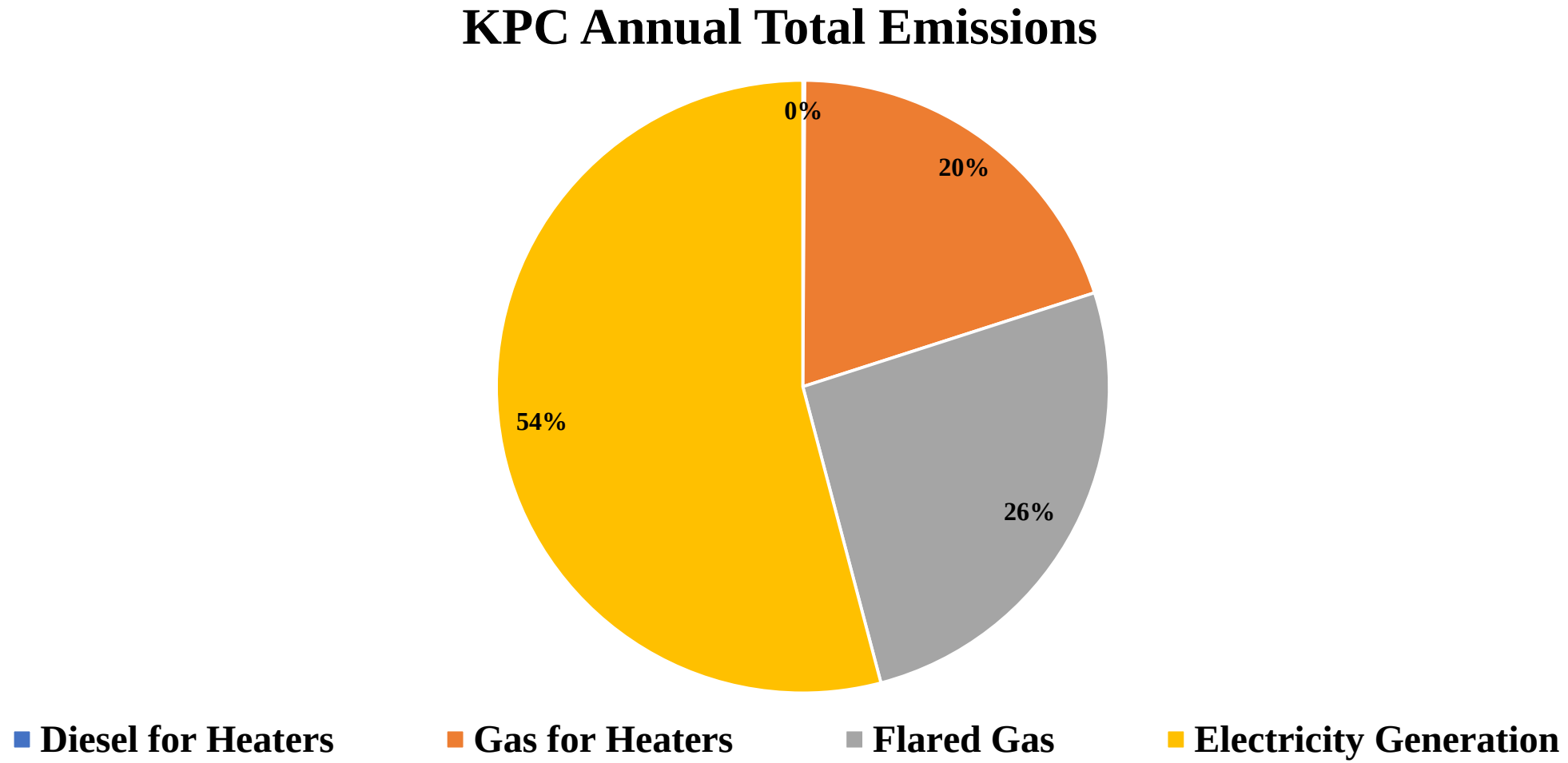
At the End of 2022,

- ***Developed 5.8 GW for Renewables.***
- ***22,000 EV charging points " Owned and Operating".***
- ***1.5 Million tons of CO2 reduction.***

Conclusions

- ***Connecting The Region*: Egypt Stands Out as A Regional Energy Hub.**
- **Egypt has been consolidating its position as a regional Gas Hub.**
- **In *EGYPS 2023*, Egypt gave a platform for Africa to talk about its readiness for energy transition. *"It was shown that shifting to new and renewable energy is not feasible for many African countries at the time being, but it is convenient to use natural gas as an alternative fossil fuel that is more environmentally friendly".***
- **Egypt launched an initiative to support African countries in having access to clean energy. The initiative was launched under the leadership of the COP27.**

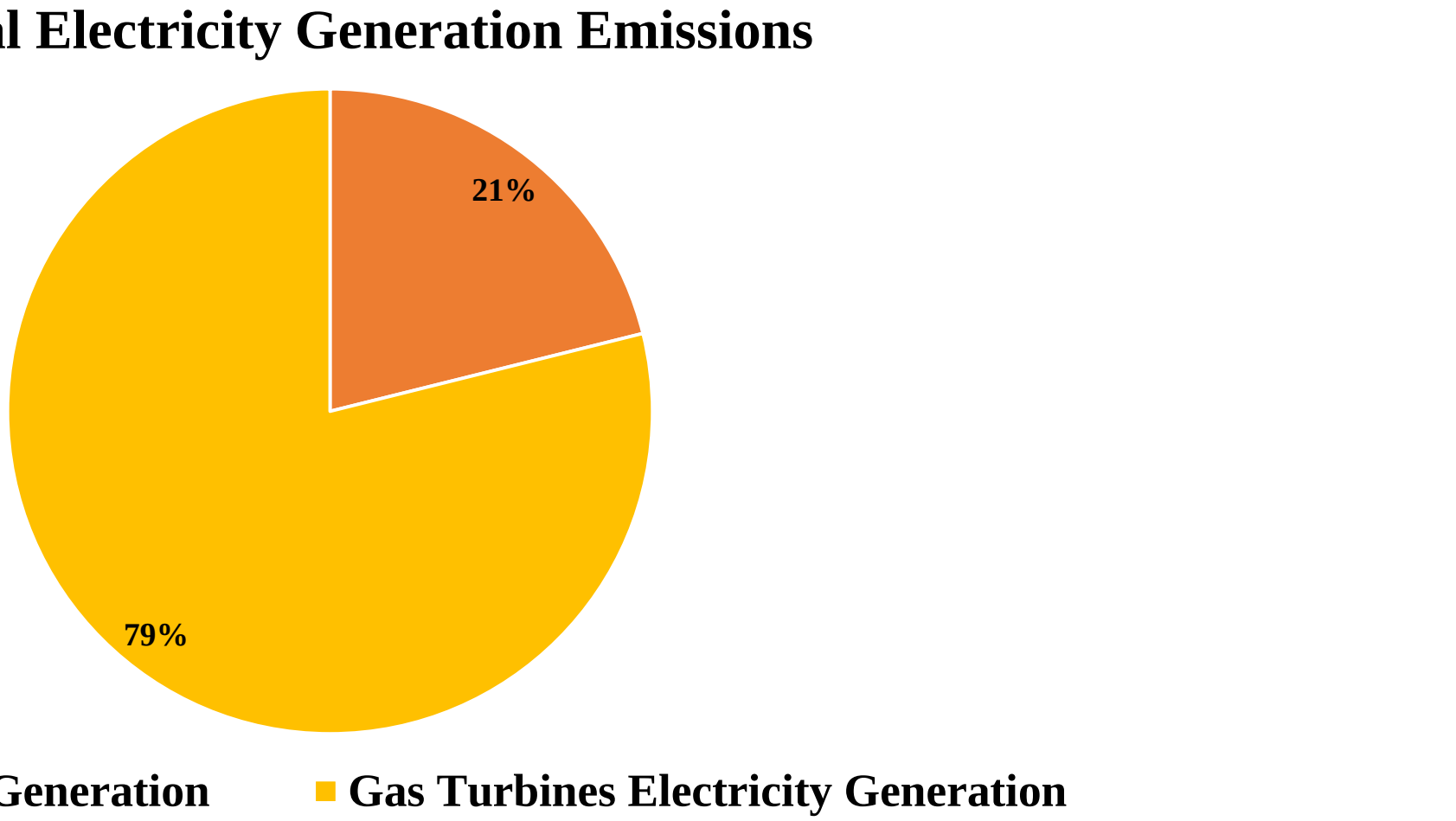
KPC Emissions Classification



Campaign to Measure Methane Gas Emissions in the Western Desert

Salam Base, Abu El-Gharadik and Tarek

KPC Emissions Classification



Ptah 10 MW Power Generation

- Annual Reduction of **15MM** liters of diesel “**40,200 TON CO2**”.
- A Total of **25 oil wells** connected in Ptah field.

KPC Emissions Classification

Proposed Solutions to Reduce Emissions:

1. Integration of BESS with Gas Turbines.
Estimated Budget $1.5 MM with PBP 1.5 Years.

2. Integrate PV Solar System with Diesel Generator.
Estimated Budget $3 MM with PBP 5 Years.

3. Waste Heat Recovery Implementation.
Estimated Budget $10 MM.

4. KPC Power Optimization
Re-distribution of Gas Turbines across all KPC Fields.

Thank you