Roadmap to achieve COP26 goals of countries

Vietnam Initiative for Energy Transition

Net-Zero scenarios and how to get them right
INETTT side event at COP 27

Sharm El-Sheikh, 9 November 2022

Vietnam signs joint statements

Global Methane Pledge

04.11.2021

GLOBAL COAL TO CLEAN POWER TRANSITION STATEMENT

02.11.2021

GLASGOW LEADERS' DECLARATION ON FORESTS AND LAND USE

Challenges

- Inefficient use of energy → High energy intensity
- Current share of fossil fuel in power sector is still high
- Uncertainty in global energy supply chain
- Dependence on imported technologies
- Lack of finance
- Lack of skilled workforce for energy transition
- Gaps in key stakeholders coordination

Regulations

Planning

Biomass

Wind

Grid

Research

Expertise

Consultancy

Training

Credibility

Excellence

Happiness

Responsibility

Interdependence

Dialogue

Scenarios

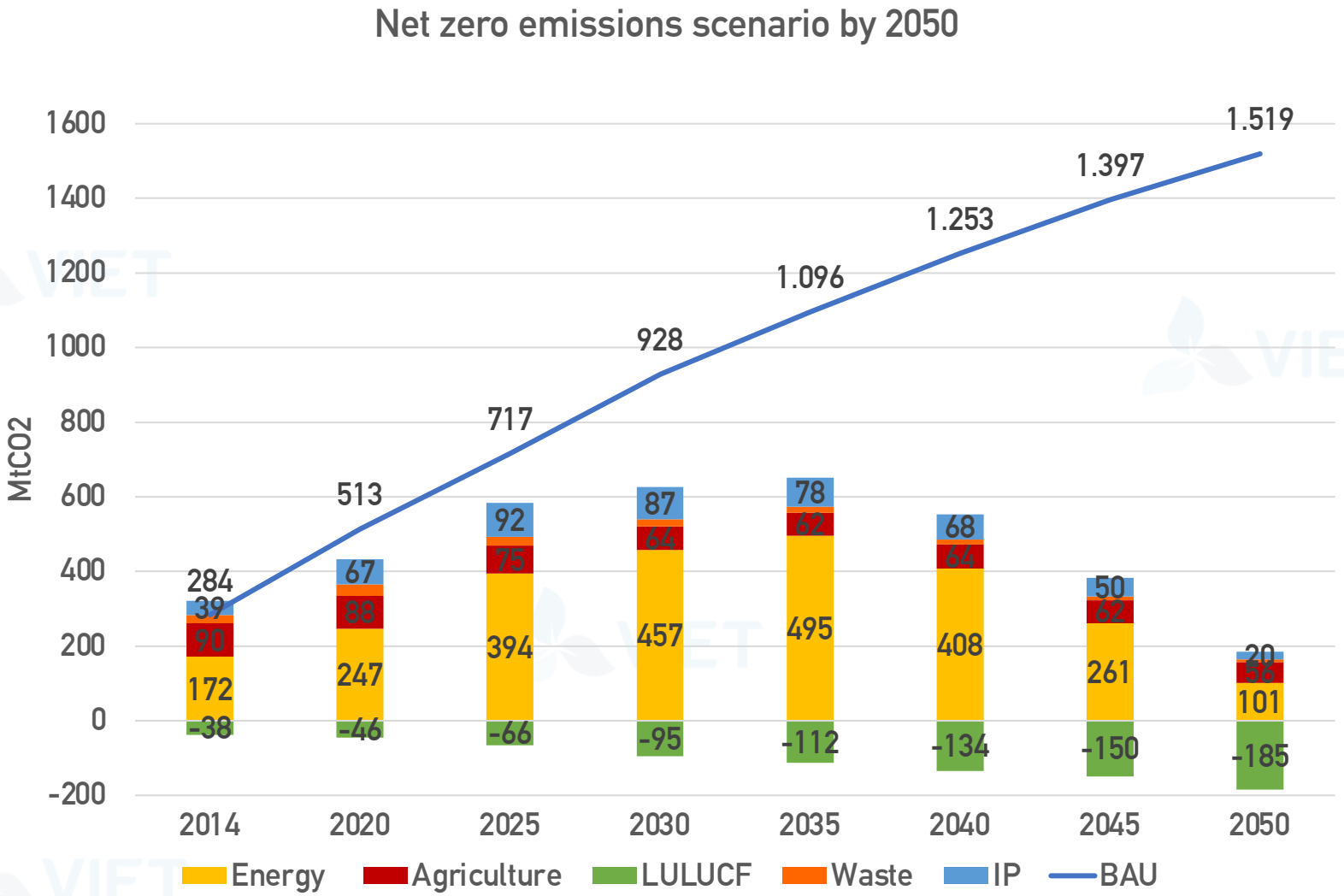
Modeling

Economics

Integrated assessment

International experience

National strategy for climate change



NDC BAU scenario 2030

Energy sector:

73% CO2 emissions ~ 678.4 $MtCO_2eq$

Power sector emission:

49% CO2 emissions ~ 452.3 $MtCO_2eq$

Source: VIETSE based on the National Strategy on Climate Change to 2050 and Technical Report for the Development of a National Strategy on Climate Change

VIETSE's works on Net-zero scenarios

Completed work

- CO_2 abatement scenarios for Vietnam's power sector
  - Implementation: Jun 2021 to Jan 2022
  - Results on scenarios disseminated to key stakeholders (MOIT, NA, DPs…) before COP26
  - The revised PDP8 after COP26 (Apr 2022) show resemblances to our recommended scenario (CYAN_EE)

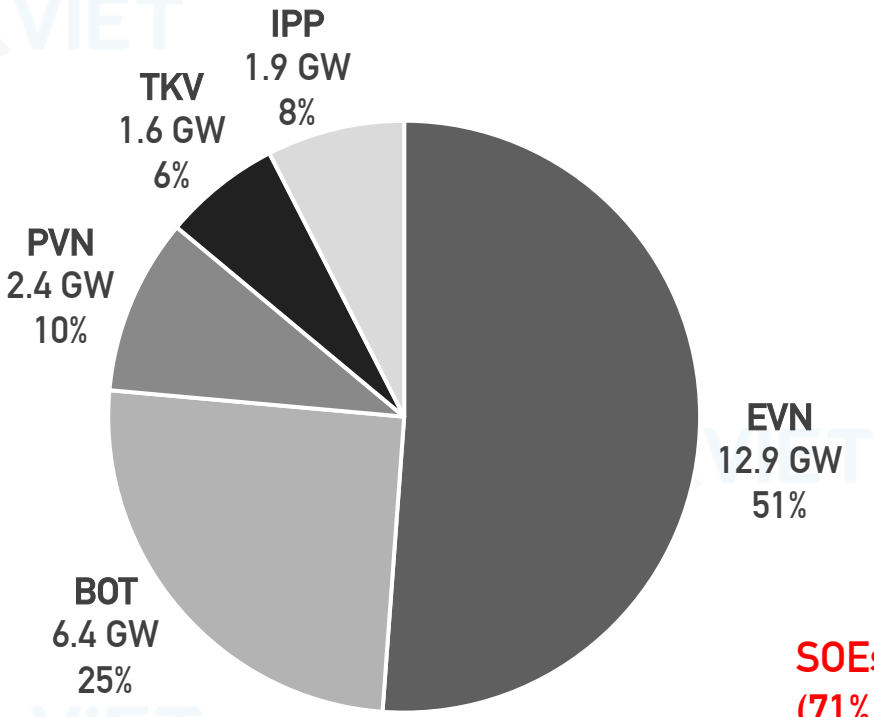
Ongoing works

- Roadmap for energy SOEs toward Net Zero target *(expected to complete in Jan 2023)*
- Long-term Energy Transition Scenarios for Vietnam *(expected to complete in Dec 2022)*
  - Power
  - Transport
  - Industry
  - Urban
  - Land use

Ongoing study:
Roadmap for energy SOEs toward Net Zero target

Three energy SOEs (EVN, PVN, TKV) owned the majority of coal fleet
→ they play a very important role in contributing to Net-zero target

Coal power plants in operation by ownership
Total capacity 25,4GW – Year 2021



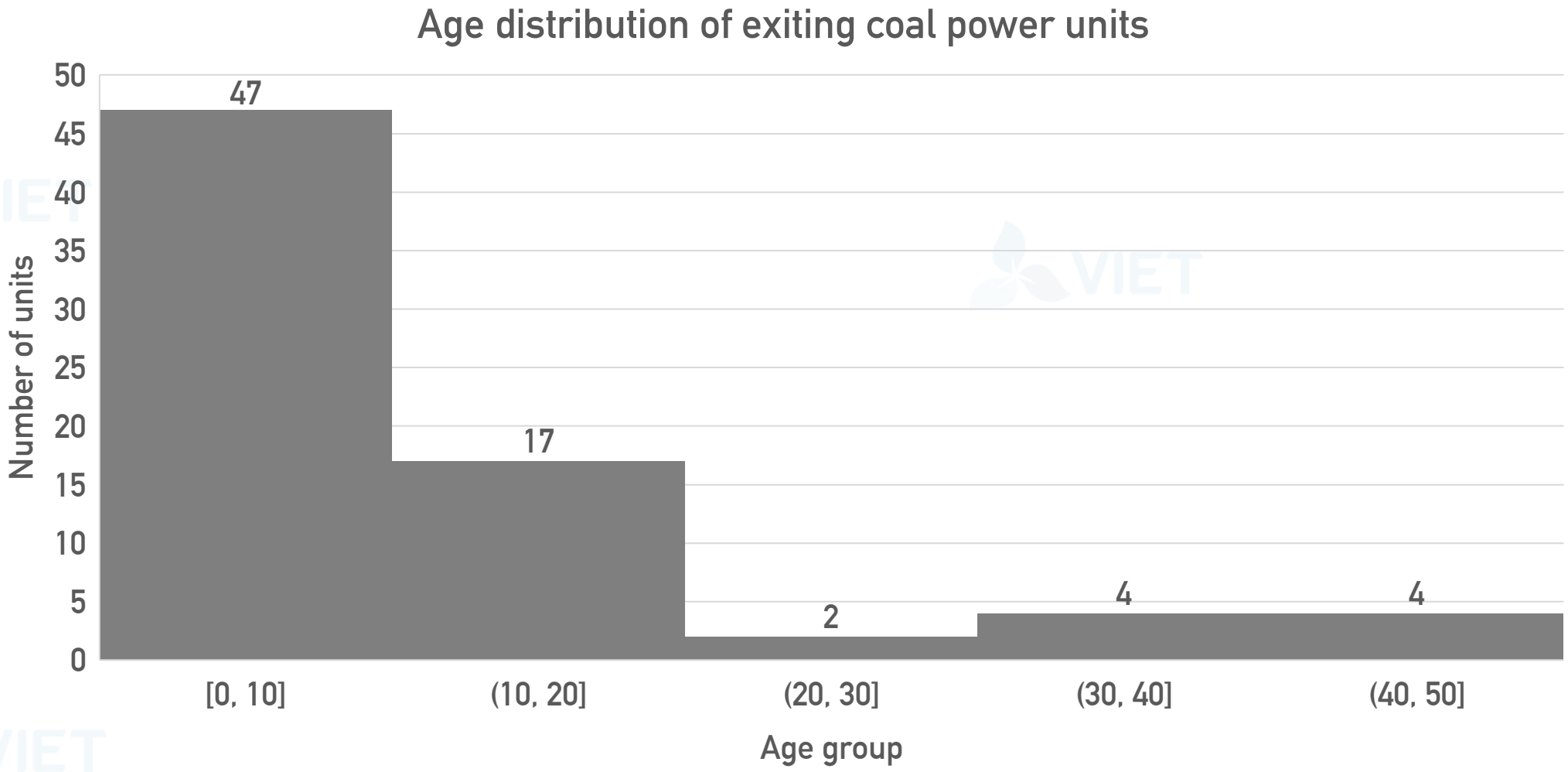
	No. of plants	Installed Capacity (GW)
EVNGENCO 1	6	5.7
EVNGENCO 2	3	2.2
EVNGENCO 3	6	5.0
TKV	7	1.6
PVN	2	2.4
BOT	5	6.4
IPP	5	1.9
Total	34	25.4

SOEs' coal power plants consumed ~41 Mt of coal ~ (71% total coal consumption for power generation)

- Estimated CO_2 emissions from coal power generation 2021:
  126.3 MtCO2 ~ 44% emission of power sector
  - SOEs: ~87.8 $MtCO_2$ ~ 30%
  - Non-SOE: 38.5 $MtCO_2$

Source: VIET's analyze based on the data published by EVN NLDC Jan 2022

Vietnamese coal fleet is quite young
–> technical, financial and social challenges for coal transition

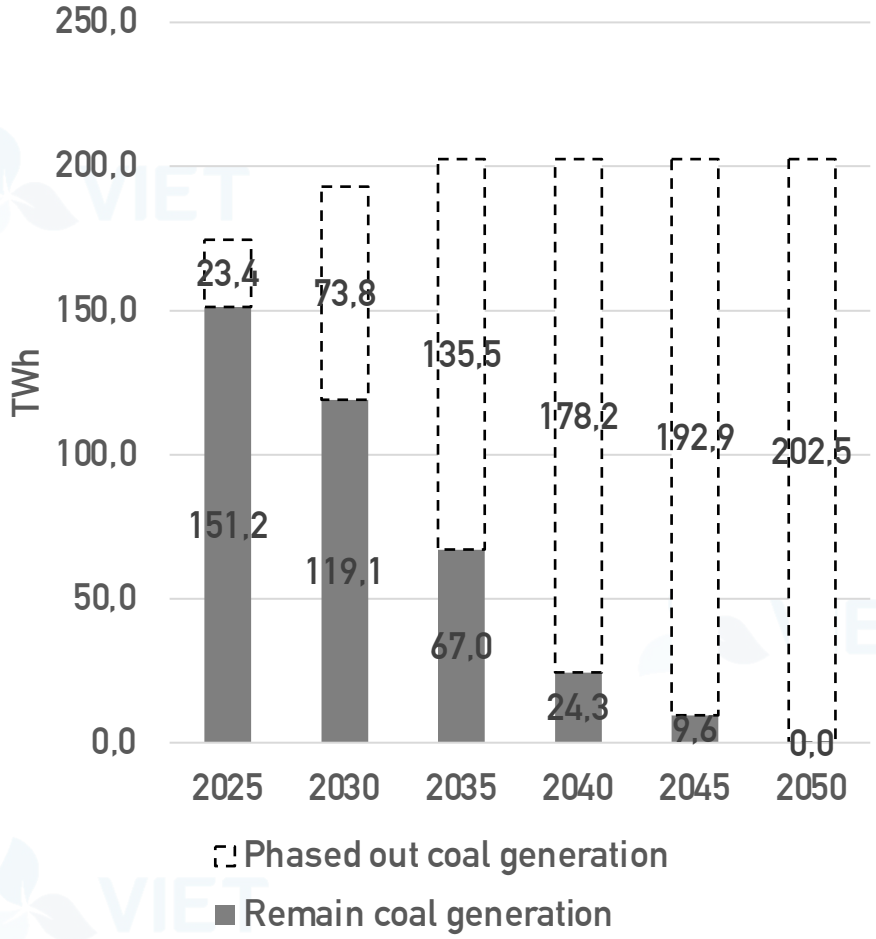


Source: VIET's analyze based on the data published by EVN NLDC Jan 2022

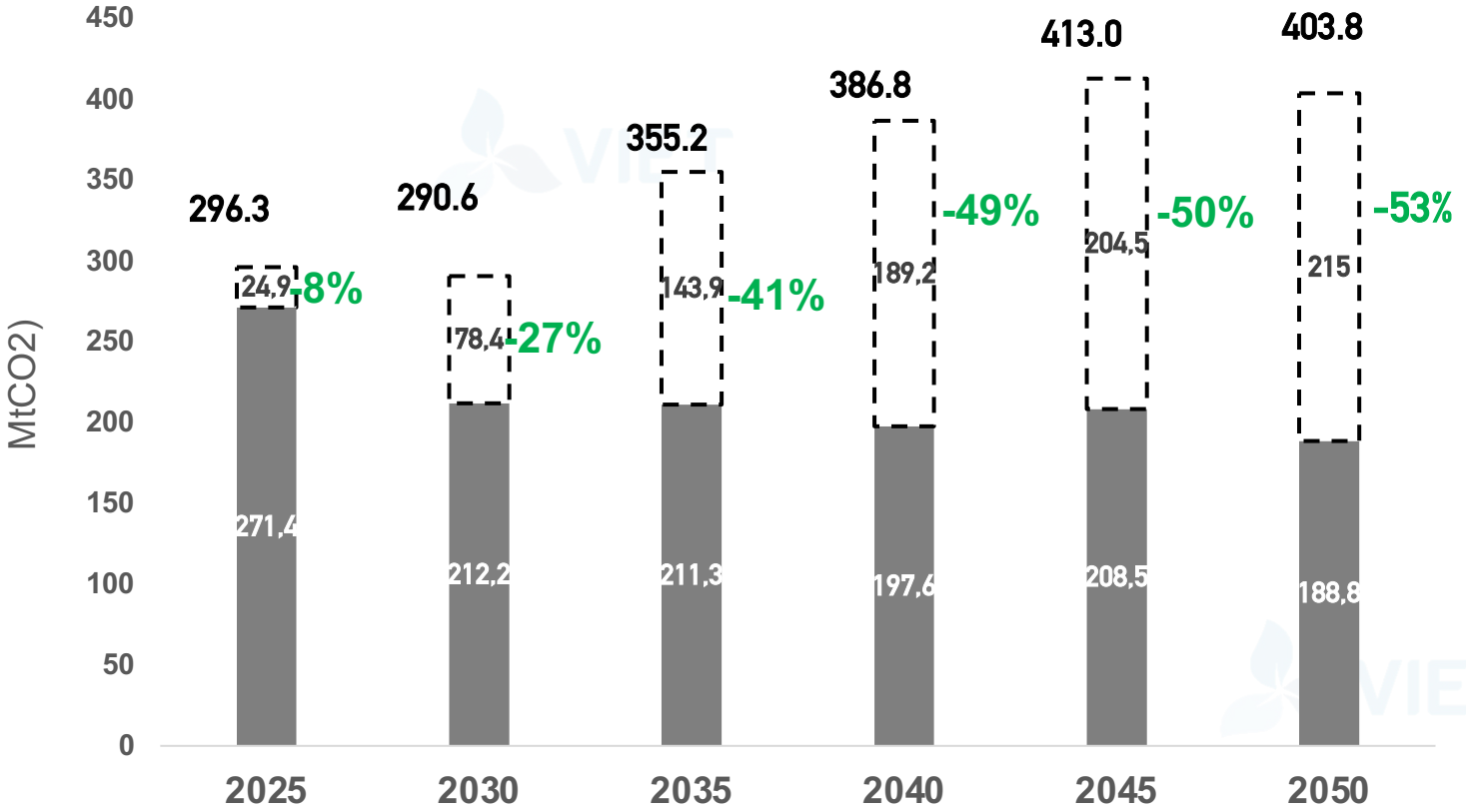
Speed-up retirement CFPPs

Coal unit reach 15 years are to be retired early to completely phase-out coal in 2050

Coal power generation



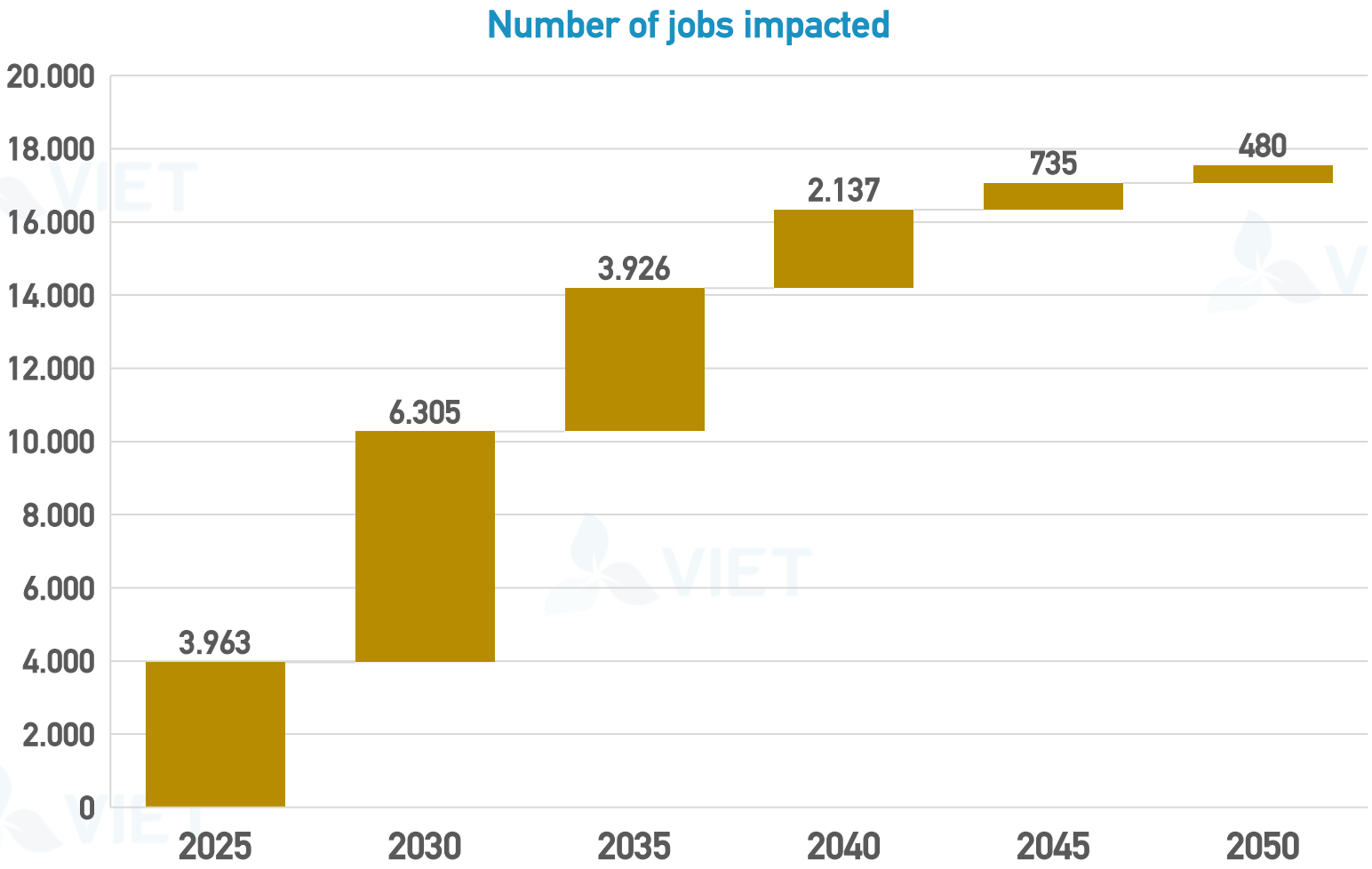
Emission reduction of Early retirement scenario compared to Emissions of Power Generation in BAU scenario in the NDC



Source: VIETSE analysis

Impacts on labours

17,000 jobs impacted in the Speed-up retirement scenario



Mechanisms and significant finance support needed to enable speed-up early retirement of coal power plants

- Compensate for impacted people
- Mitigate financial impacts to coal power plants' owners
- Investment in alternative sources to ensure power supply
- Investment in grid and flexibility for RE accommodation

Source: VIETSE analyses

Resources needed to speed up coal phase-out

Measure	Example of resource needed
Investing in alternative power sources (RE)	To replace 202 TWh coal generation by RE in 2050: • **56 GW** of wind power **(~ 84 Bil.$** investment cost) or • **112 GW** of solar power **(~100 Bil.$** investment cost)
Investing in grid infrastructure, storage and flexibility option to accommodate a higher share of VRE	Draft power development plan foresees an investment cost of **16 Bil. $** for the transmission grid. In case of phase out scenarios, the need for transmission investment would be higher as there would be additional RE capacity to compensate for phased-out coal
Social security: compensation for impacted workers	The social impact of coal phase out include both direct impact to the workers and indirect impacts to their families. Scale of impact is **17k jobs** with average wage of **800 - 1200 $/month**.
Compensation for plants to retire early	An estimation of cumulative profit (non-discounted) for 2015-2050 shows that the accelerated phase-out (after 15y of operation) would result in a negative profit of **7.5 Bil.$.**

Vietnam's Net-Zero Carbon Emissions by 2050

Shift away from high carbon power generation

Up to 2030 goal: Over-deliver on NDC

- Energy Intensity/EE improvement
- Renewables Speed up the development of OWE
- Biomass co-firing
- Waste to Energy
- Storage
- Coal retirement
- LNG as buffer to increase flexibility system

Long-term (2031-2050) goal: Achieve Carbon Neutrality

- Independent Energy
- Renewables
- Battery storage
- Interconnections
- Hydrogen co-firing
- Carbon Capture & Storage
- Coal phase down/out

Growth powered with new technologies/business

Demand side management

- Electric Vehicles
- Rooftop solar
- Green buildings
- Energy as a Service
- REC/Carbon credits
- Carbon trading scheme

Local Capabilities and Technologies
(Exellence Energy center: Research & Development, Governance, Capacity Building)

Thank you!

Vietnam Initiative for Energy Transition

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