



Technology Key to Lowering Emissions

COP 23 – U.S. Side Event

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Themes for Discussion

- Coal remains an essential part of the world's energy mix
- HELE and CCS technologies will be key to improving emissions
- Greater public-private partnerships and actions important to advancing a low-carbon future

Peabody

Peabody is the world's largest private sector coal company and a global leader in advocating for sustainable mining, energy access and clean coal technologies.



Coal Remains Essential Part of World's Energy Mix

We respectfully
submit some facts...
and our viewpoint:

- Fossil fuels
comprise ~80% of
the world's energy
- Coal fuels nearly
40% of global
electricity
- The world will use
fossil fuels for
many years to
come

*"ENHANCED DEPLOYMENT OF CLEANER
COAL TECHNOLOGY WILL REDUCE
ASEAN'S EMISSIONS PROFILE ..."
MINISTERS CALL ON STAKEHOLDERS
TO "ADOPT LOW-EMISSION COAL AS
PART OF THEIR COMMITMENT TO THE
PARIS AGREEMENT."*

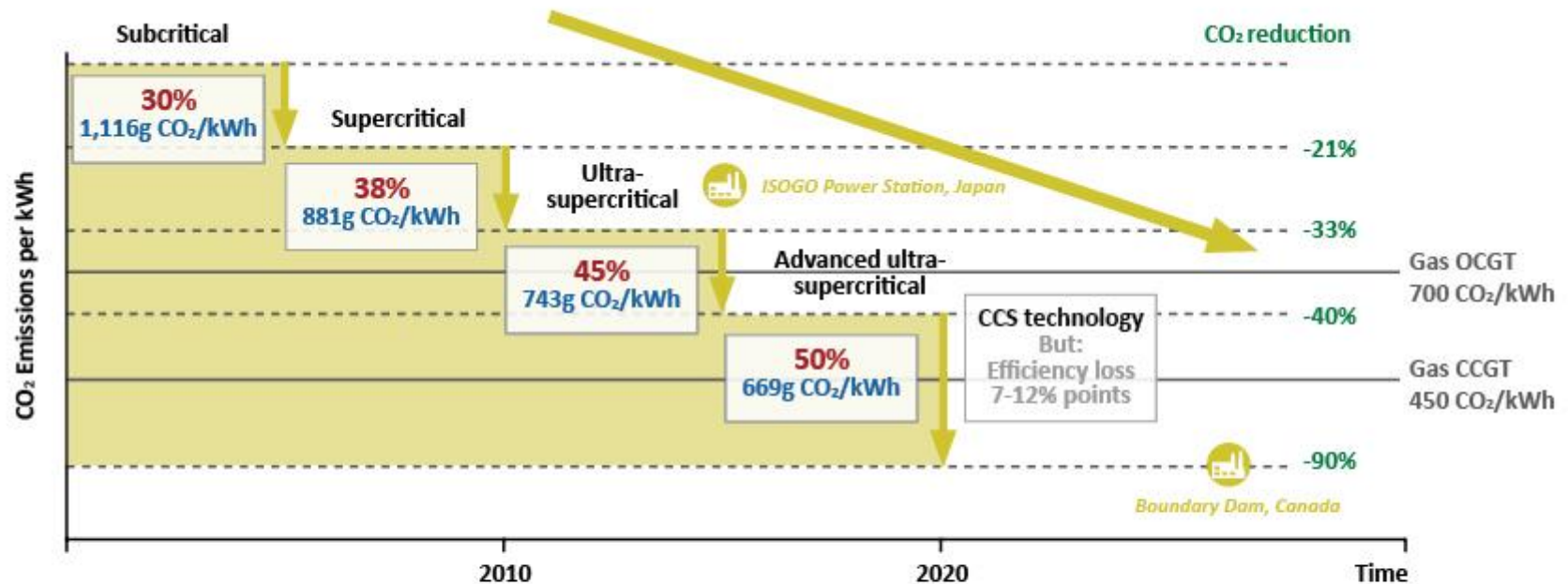
**Joint Ministerial Statement
of the 35th ASEAN Ministers on Energy Meeting
27 September 2017**

***"One ASEAN Community through
Resilient and Sustainable Energy"***

Technology is Key to Drive Emission Reductions

TODAY'S TECHNOLOGIES DELIVER MAJOR ENVIRONMENTAL IMPROVEMENT

CO₂ reduction potential of coal-fueled power plants by increased efficiency



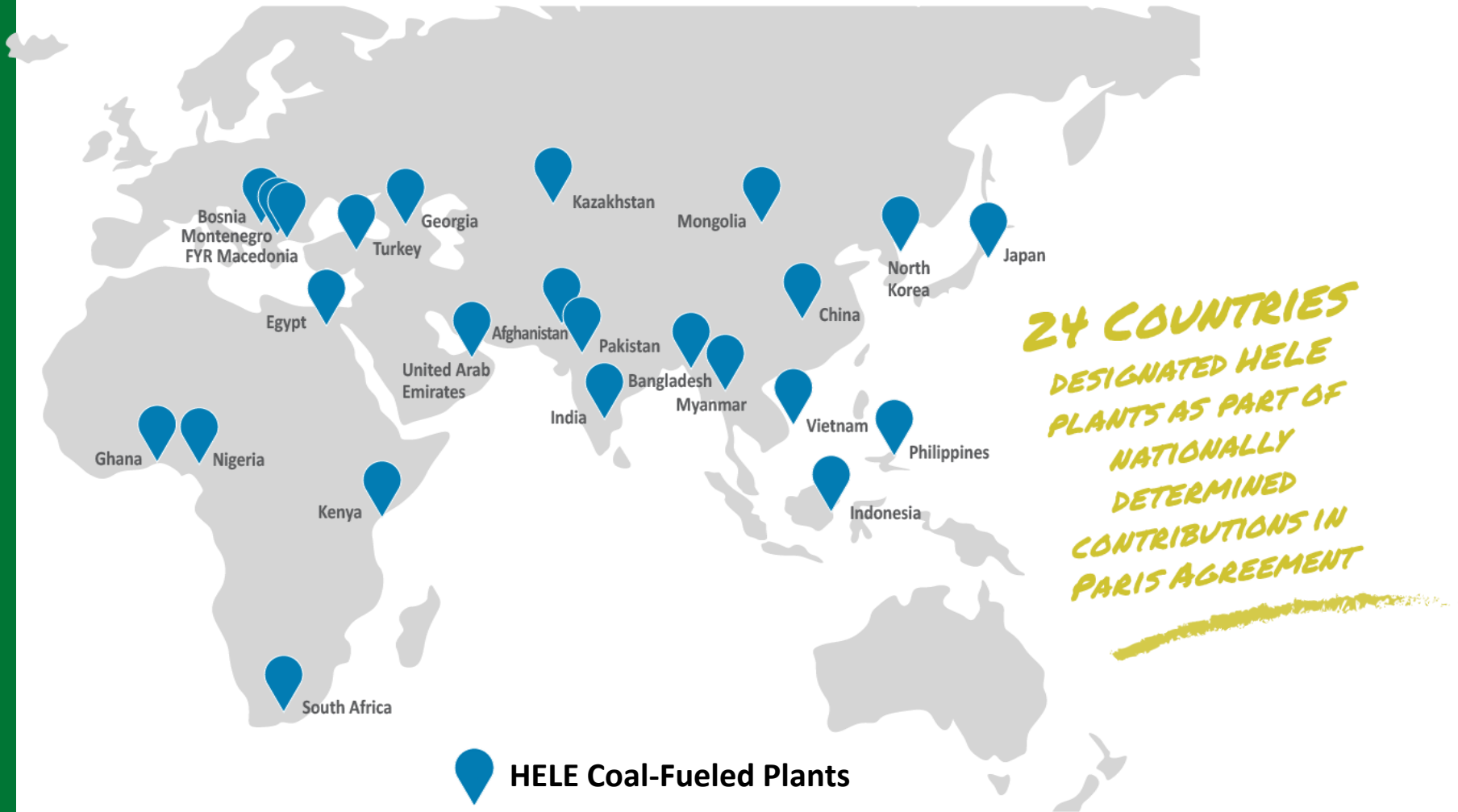
■ Efficiency
■ CO₂ Emissions

ONE LARGE HELE PLANT CAN REDUCE EMISSIONS BY THE EQUIVALENT OF TAKING 1 MILLION CARS OFF THE ROAD.



Source: World Coal Association/VGB PowerTech 2013

High-Efficiency, Low-Emissions Coal Powers Reductions under Paris Agreement

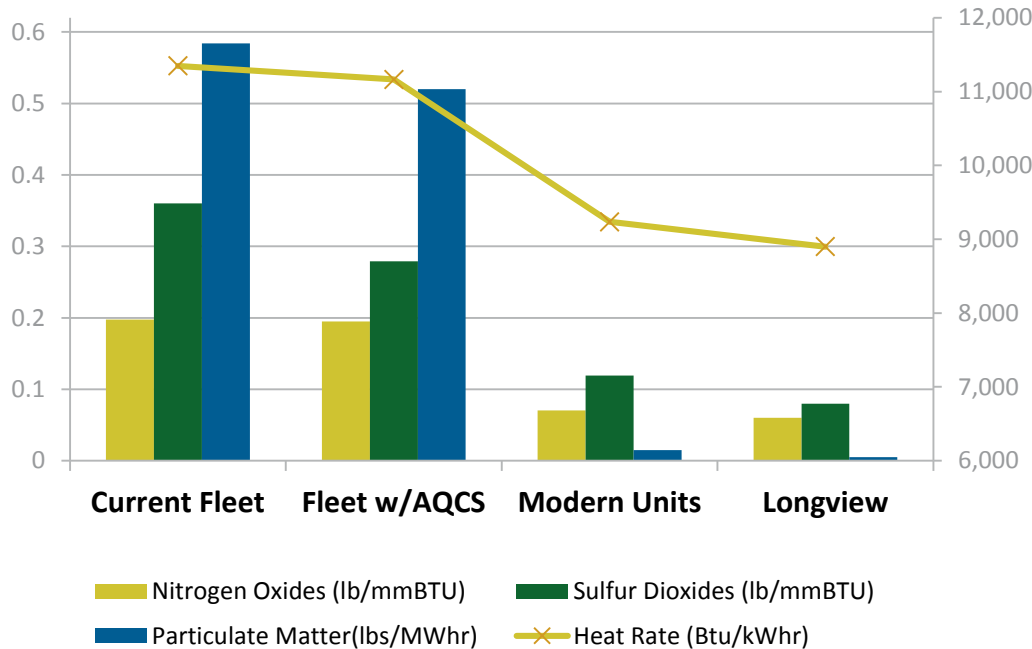


Source: World Coal Association

Case Study: Longview Plant Demonstrates High-Efficiency, Low-Emissions Technologies

Longview Power

Emission Rates



Improvements Over Existing U.S. Plants

NO _x	70%
SO ₂	78%
PM	90+%
Heat Rate	22%



Source: Longview Power, Maudsville, WV, SNL and EPA Permit Limits for Modern Units.
Actuals likely lower by 10 to 20 percent

Case Study: Petra Nova

A Carbon Capture Model for Existing Coal Plants

Joint Partnership NRG and JX Nippon Oil & Gas Exploration

- Captures carbon for enhanced oil recovery using post-combustion technology
- Expected to increase production from 500 to 15,000 bpd
- Received \$190 million U.S. Department of Energy grant
- Completed on schedule and on budget
- * ● More than 1 million tons CO₂ captured to date



Petra Nova near Houston, Texas

"WHY ENVIRONMENTAL PROTECTION DOESN'T HAVE TO COME AT THE EXPENSE OF ECONOMIC PROSPERITY AND ENERGY SECURITY."

— Energy Secretary Rick Perry

Peabody

Emission Goals Will Not be Met Without Deployment of Carbon Capture

CCS VITAL TO ACHIEVING CLIMATE GOALS

- Central to a 2°C pathway
- Equals 14% cumulative emission reduction by 2060
- Mitigation cost increases from 2% to 5% of global GDP every year without CCS

FUNDING IS A KEY COMPONENT

- Clean energy technology drastically underfunded
 - CCS only 1% of \$2 trillion clean energy investment over last decade



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