SESSION 2

Promotion of High-Efficiency, Low-Emissions Coal Technologies in Power Generation

UNITED NATIONS
ESCAP
Economic and Social Commission for Asia and the Pacific

Overview

- Current status of coal-fired generation and global projections
- Economic, social and environmental impacts of coal for electricity generation
- Why High Efficiency, Low-Emissions (HELE) coal
- Benefits of HELE coal-fired generation
- Key recommendations

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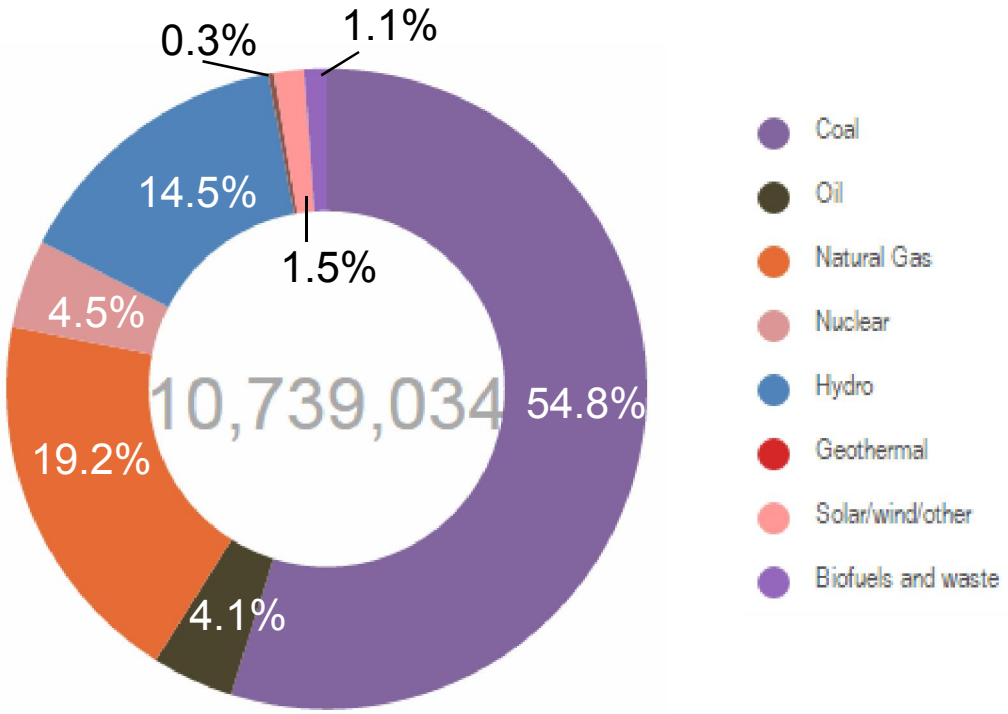
Current Status

Electricity Production, by Resource in Asia and the Pacific, 2012

(Thousand tons of oil equivalent)



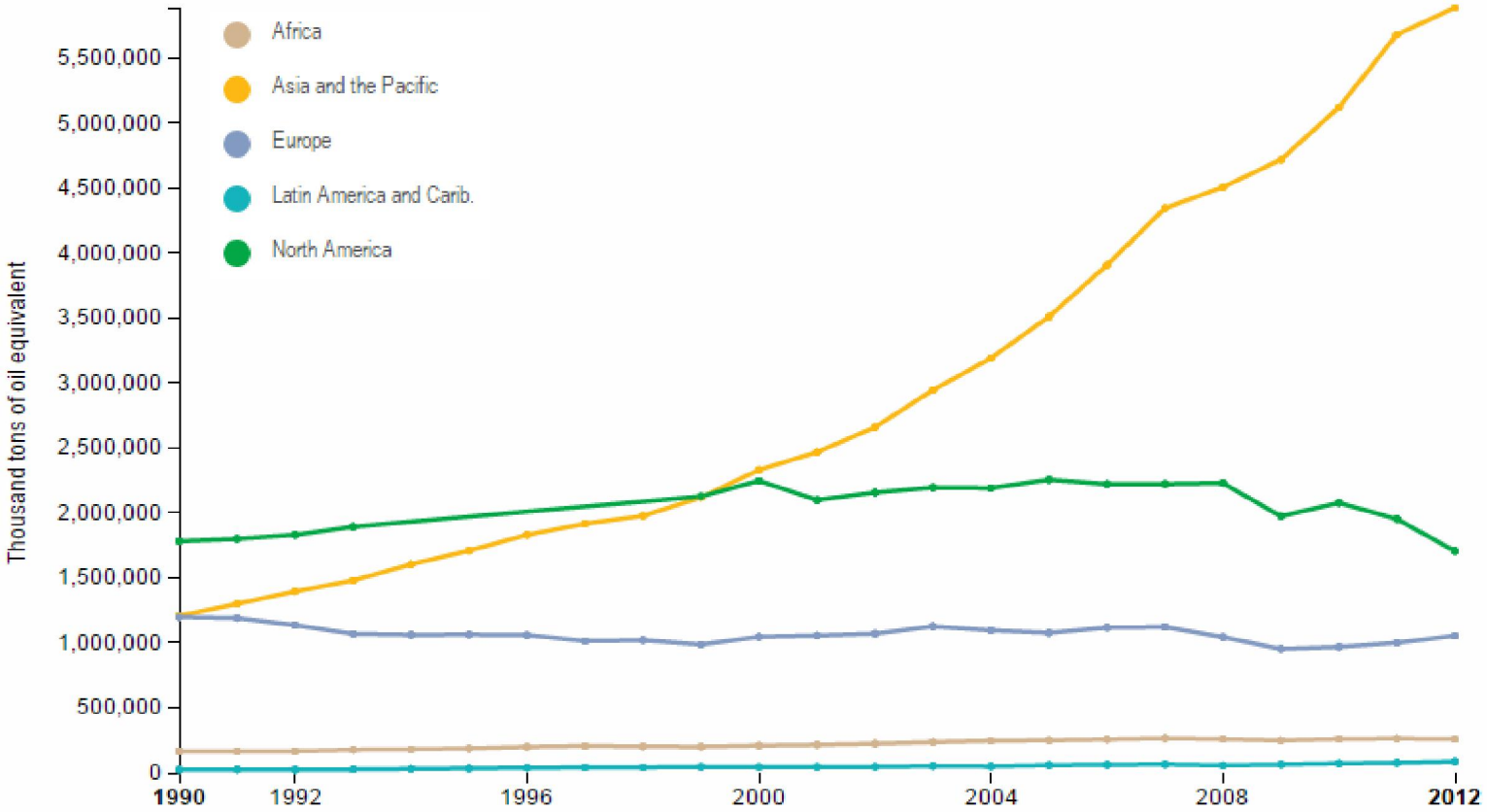
Source: ESCAP Portal, IEA 2012

- Many countries in Asia-Pacific are using, and will continue to use coal to meet rising energy demands, especially as they pursue electrification policies.

Current Status

Electricity Production from Coal, 1990-2012

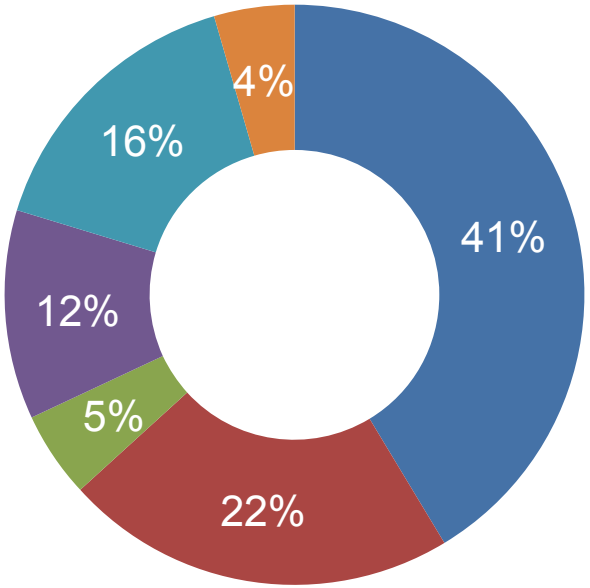
(Thousand tons of oil equivalent)



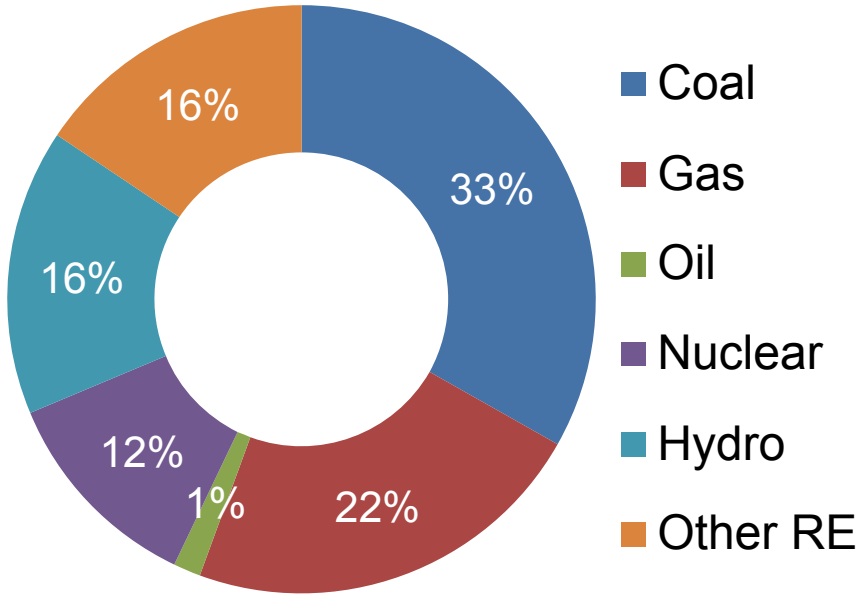
Source: ESCAP Portal, IEA 2012

Global Electricity Mix (Current + Projections)

2011 Global Electricity Mix



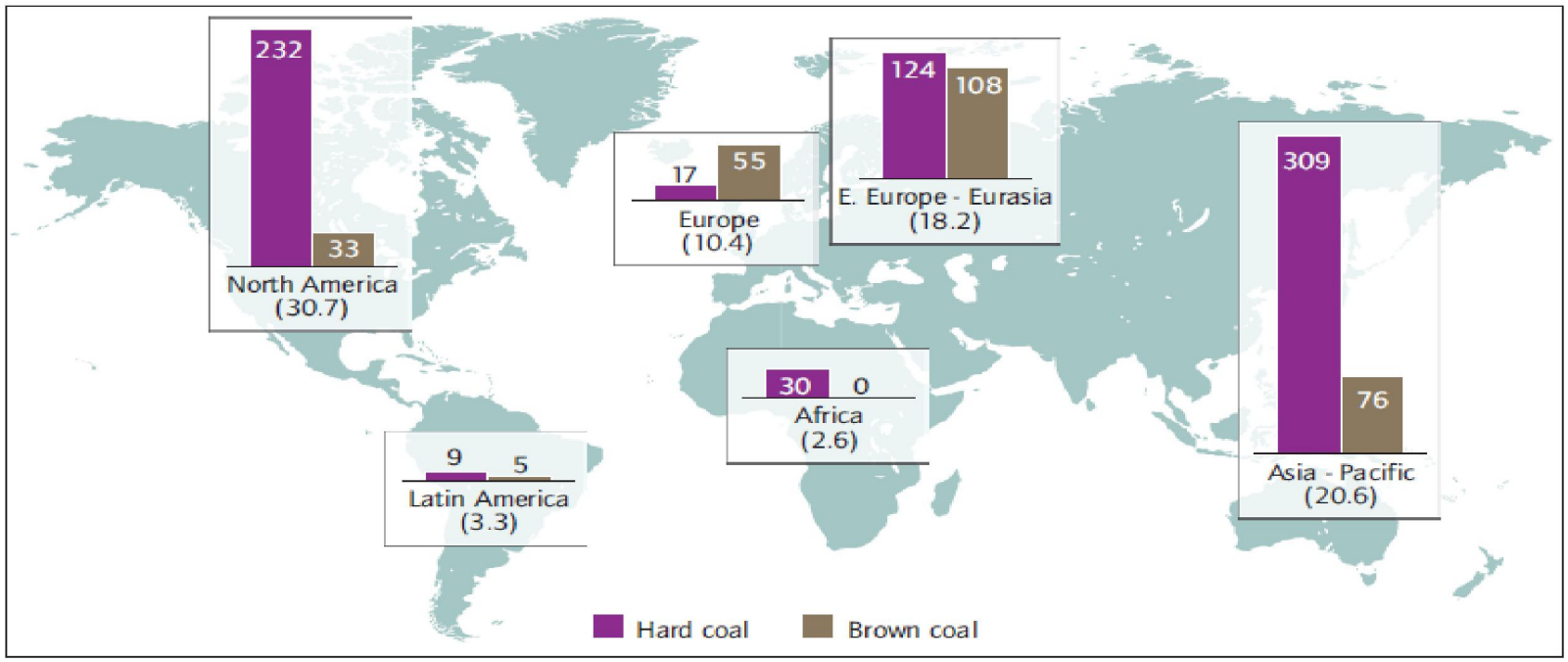
2035 Global Electricity Mix (NPS)



Data source: IEA (2013), *World Energy Outlook 2013*, OECD/IEA, Paris, France. (p.175)

- While coal's share falls to 33% in 2035 from 41% in 2011, coal remains the leading source of electricity generation in 2035 under the IEA NPS scenario.
- Despite coal's drop in share, global coal demand will increase from 9,140TWh in 2011 to 12,312TWh in 2035. 75% of this growth will come from the power sector.

Coal Reserves by Region (end-2009)



Notes: Numbers in parentheses represent the ratio of total coal resources-to-reserves for each region.
Coal reserves in gigatonnes (Gt).

Source: IEA (2013), *Technology Roadmap: High-Efficiency, Low-Emissions Coal-Fired Power Generation, 2013 edition*, OECD/IEA, Paris, France. (page 8)

- Coal-fired electricity generation will remain a substantial part of the Asia-Pacific, as well as global, energy mix for decades to come. In order to produce electricity in a more efficient and cost-effective manner while reducing emissions, a progression toward HELE coal generation is essential.

Social and Environmental Impacts of Coal for Electricity Generation

- Globally, coal-fired power generation is a leading source of sulfur dioxide (SO2), nitrous oxides (NOx), particulate matter (PM) and mercury, along with other toxic pollutants.
- According to IEA, in 2011, electricity and heat generation accounted for 42% of global CO_2 emissions, of which 72% was derived from one source – coal-fired power plants.
- Per kWh, coal has nearly 20% more GHG emissions than