



Key Findings from the Outlook – Economy Review

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Overview

❖ Key Findings – Economy Review

- North East Asia
- South East Asia
- North America
- Latin America
- Oceania

❖ Major Issues

- Demand-Side and Others
- Supply-Side

❖ Where to from here??



Key Findings - Economy Review





North East Asia

❖ China – High Energy Demand Expected

- Power Sector Development – 626 GW addition
- Energy Security – import dependency (18% in 2030)
 - Oil – Coal to liquids, overseas E & P
 - Natural Gas – LNG, expansion of domestic resources
- Demand-side measures – strengthen energy efficiency

❖ Japan – energy security

- Transportation (26% TFED)– oil supply source diversification
- CO₂ emissions and meeting the Kyoto Protocol target

❖ Korea – Industrial centered economy (50%)

- Energy/carbon intensity improvement
- Electricity security – bigger role for nuclear



North East Asia cont...

- ❖ **Russia – Remain Major Energy Supplier**
 - Oil 294 Mtoe, natural gas 197 Mtoe Net Export Position in 2030
 - Refurbishment/reconstruction of old facilities
 - Investment of US\$401 b for oil/gas – improvement of investment environment
- ❖ **Hong Kong, China – No domestic production**
 - Future gas supply – LNG imports
 - Integration with Chinese economy – increased trade (high transport energy intensity)
- ❖ **Chinese Taipei – Industry orientated**
 - 50% TFED industry – energy intensity improvement
 - Non-nuclear homeland policy – how to achieve source diversification – move to coal increasing carbon intensity



South East Asia

- ❖ **Indonesia – Energy Exporter to importer(?)**
 - Increasing oil import dependency (60% in 2030)
 - Demand side measures – rationalisation of energy pricing
- ❖ **Malaysia – Energy Exporter to importer**
 - Increasing oil import dependency (32% in 2030)
 - Natural gas dependence for electricity generation
- ❖ **Thailand – Major Energy Importer**
 - Increasing oil import dependency – search for alternatives – biofuels
 - Fuel diversification for electricity generation – natural gas to coal



South East Asia Cont...

- ❖ **Viet Nam – Transitional Economic Development**
 - **Infrastructure development – US\$172 b (or 5.2% of GDP)**
 - **83% of investment for electricity**
 - **Oil import dependency – from net exporter to 57% net imports in 2030**
- ❖ **Philippines – Import dependent**
 - Increasing oil import dependency – search for alternatives – biofuels
 - Promoting regional cooperation
- ❖ **Brunei Darussalam – Remain energy exporter**
 - Remain self-sufficient in oil and gas
 - To maintain export position – US\$3.6 b in oil and gas (81%)
 - Diversification of export revenues from oil and gas industry
- ❖ **Singapore – Petroleum Product Market**
 - Continue refining activities – strengthen competitiveness vis-à-vis South and South-East Asian economies
 - Become a hub for natural gas supply and storage



North America

❖ United States – Major Energy Consumer

- Enhancement of energy security – net import ratio of 35% in 2030 (emphasis on domestic coal)
- Strengthening of transmission network (US\$982 b)
- Diversification of supply – LNG, coal

❖ Canada – Oil supplier

- Oil sands expansion – energy intensive
- Gas supply to US in jeopardy – future LNG imports
- Environment – Kyoto Protocol and CO₂ Emissions



Latin America

- ❖ **Mexico – Energy Exporter to Importer**
 - Non-OPEC oil producer – need legislative changes to promote investment in upstream
 - LNG imports – currently imports from US (future exporter)
- ❖ **Chile – Diversification/regional integration**
 - Natural gas supply
 - Power sector reform/integration
- ❖ **Peru – Diversification/regional integration**
 - Natural gas supply and export
 - Power sector reform



Oceania

❖ **Australia – Important APEC Energy Producer**

- **Major Energy supplier –**
 - **LNG – 62 million tonnes in 2030**
 - **Coal – 450 million tonnes in 2030**
- **Investment – meeting domestic needs while increasing exports**

❖ **Papua New Guinea – Investment**

- **Development of domestic resources**
- **Expansion of infrastructure**

❖ **New Zealand – Security of Electricity Supply**

- **Electricity – high hydro dependence, falling gas production**
- **CO₂ Emissions – coal for generation (higher emissions)**



Major Issues



Demand-Side

❖ Urbanisation and Energy Demand

- The challenge posed by rising energy needs to be overcome by government – both local and national – in the transport sector.

Urban Transportation Energy Use in the APEC Region

Other Issues

❖ Environment

- Placing “costs/charges” on operations... carbon constraints

Understanding International Energy Initiatives

❖ Investment

- Financing, siting and a lack of fiscal incentives are the main barriers holding back additional investment... inter-regional cooperation??



Supply-Side

❖ Energy Resources Constraint

- Projected cumulative extraction of oil and natural gas will substantially exceed current proven reserves... are resources sufficient??

❖ Energy Transportation

- Demand growth equals in leading to more ships and

Energy Security in the 21st Century

❖ Water and Energy Demand

- The water/energy nexus could have profound implications for electricity supply security and cost... competition??

❖ Human Resources Constraint

- Shortage of human resources poses a threat to future development and safety... skilled labour/engineering appeal??