

ASEAN's Energy Cooperation

A thematic analysis and a case study of Indonesia

Introduction

- Question: “What are the main themes of ASEAN energy policy and how do they relate to each other?”
- Four themes:
 - Energy security
 - Interconnectedness
 - Communication
 - Capacity building

Introduction

- Case study: Indonesia
 - Laws and policies regarding coal and renewable energy (RE)
 - Purposes:
 - To determine the extent to which they reflect the four themes
 - To discuss how their laws and policies may be modified to be more reflective of the themes

Introduction

- How the four themes interact
- How ASEAN's emphasis has shifted over time among them
- Central driver shaping ASEAN and Indonesian energy policy:
 - Energy security

Characterisation: of ASEAN energy cooperation

- At the fringe of public international law?
 - Transnational regulation?
 - Soft or hard law?

Characterisation

- Dimensions of uncertainty or unfamiliarity
 - Energy as a “no man’s land lying between the social sciences”
 - Economics, law and politics
 - ASEAN
 - Consultation and consensus
 - Legalisation and institutionalisation: the Charter, the ASEAN Community
 - How to balance?

Characterisation

- Dimensions of uncertainty or unfamiliarity
 - Energy cooperation in ASEAN: nascent
 - How will ASEAN energy policies be implemented by its member states?

The four themes

- Consistently featured since beginning of cooperation
- Energy security:
 - Concept “evolved over time to encompass diverse dimensions”
 - Context-dependent, dynamic
 - Definition (inferred) for this paper: adequacy of supply at reasonable pricing, accessibility or equitable distribution with acceptable environmental impact, efficiency and a diversification of energy sources

The first theme: energy security

- At the beginning, only emergency cooperation was envisaged
 - the 1986 Agreement on ASEAN Energy Cooperation (AAEC), Preamble and arts 1(2) and 6:
 - The ASEAN Member States (AMS) were “to assist each other by according priority to the supply of the individual country’s needs in critical circumstances and priority to the acquisition of exports from Member Countries, in respect of basic commodities particularly foods and energy”
- In the 1990s, the scope expanded to include “energy supply planning and diversification” and “energy policy and planning”
 - 1995 Amending Protocol, art 1

The first theme: energy security

- In the 1990s, ASEAN energy cooperation gained greater momentum
 - The Medium-Term Programme (Oct 1995) focused on diversification of energy sources, energy efficiency and energy policy and planning
 - These are some of the dimensions of energy security
- The ASEAN Plans of Action for Energy Cooperation (APAECs)

The first theme: energy security

- On 3 July 1999, the 17th ASEAN Ministers on Energy Meeting (AMEM) adopted the first APAEC (1999-2004)
- The first APAEC elaborated the energy cooperation agenda of the Hanoi Action Plan, which presented two objectives, the first of which was to:
 - “ensure security and sustainability of energy supply, efficient utilisation of natural energy resources in the region and the rational management of energy demand, with due consideration of the environment”

The first theme: energy security

- Thus, energy security was one of the chief purposes of the first APAEC
 - In fact, according to its Introduction, energy security “had been incorporated in all the other programme areas”
- The subsequent APAECs have preserved all the programme areas, and the third APAEC added the Civilian Nuclear Energy (CNE) programme area

The first theme: energy security

- Therefore, energy security has always been on the agenda
- Also, the concept has remained largely unchanged

The first theme: energy security

- Coal and Clean Coal Technologies (CCT)
- Energy efficiency and conservation
- Renewable energy (RE)
- Regional energy policy and planning

The first theme: energy security

- Coal and CCT
 - In the first APAEC, Coal was the programme area that manifested the dimension of adequate supply most clearly
 - While ASEAN's oil reserves, were being depleted, coal was abundant and widely distributed
 - Coal is one of the cheapest fossil fuels
 - It's relatively easy to transport and distribute

The first theme: energy security

- Coal and CCT
 - The second APAEC (2004-2009)
 - One objective was to “develop and expand the energy mix and supply source”
 - Another was to ensure a “secure and reliable supply of energy to support economic activities, in an environmentally acceptable manner”
 - Elaborated the Vientiane Action Plan, was also a response to the 2002 World Summit on Sustainable Development

The first theme: energy security

- Coal and CCT
 - The third APAEC (2010-2015)
 - Makes CCT and intra-ASEAN coal trade a primary focus
 - Positions regional trade as a means of ensuring security of coal supply and thus energy supply
 - Envisages further studies in CCT, encouraging private sector investment and participation and an ASEAN Clean Coal Competition

The first theme: energy security

- Coal and CCT
 - The fourth APAEC (2016-2020)
 - Continues the focus on CCT
 - The need to continue technology transfer and public financial support from developed countries and multilateral development banks
 - Plans for the development of a business or financing model to promote greater participation of the public and private sectors, DPs and IOs in the adoption of CCT
 - Continues the focus on intra-ASEAN coal trade
 - Plans for at least one ASEAN Coal Business Roundtable and Conference
 - Purpose of CCT and trade are to further regional energy security and ensure sustainable development

The first theme: energy security

- Renewable Energy (RE)
 - To diversify energy sources to address climate change and sustainable energy growth
 - The third and fourth APAECs see RE as necessary “to increase the diversity of energy supply and to reduce the environmental impact of energy use in the ASEAN region”
 - RE is seen as the appropriate complement to fossil fuels, to support sustainable development
 - Examples of projects:

The second theme: interconnectedness

- Definition:
 - The creation, maintenance and enhancement of collaborative relationships and/or trade relations within ASEAN and between ASEAN and external entities
- Purpose:
 - To ensure energy security

The second theme: interconnectedness

- AAEC has an objective of “promoting a more conducive environment for commercial and investment opportunities in all aspects of the energy sectors” “so as to pursue activities that would enhance the ASEAN economic cooperation...”
- Medium-Term Programme:
 - The general objective of energy cooperation is to enhance economic cooperation in the region
 - Another objective is “to establish and to form a more effective overall ASEAN energy training, research and development network”

The second theme: interconnectedness

- ASEAN Forum for Power Utilities / Authorities was placed in charge of overseeing cooperation in the electricity sector
- Is now the Heads of ASEAN Power Utilities / Authorities (HAPUA)
- Same emphasis on network building and cooperation in the coal and policy planning sectors
- The second APAEC elaborated on various cooperation initiatives with ASEAN's DPs

The second theme: interconnectedness

- Another dimension of interconnectedness:
 - Establishing relations with the private sector
 - Medium-Term Programme's electricity sector programme
 - New and Renewable Sources of Energy (NRSE): local manufacturers are encouraged to participate
 - All the APAECs, except the first, continue to emphasise the involvement of the private sector in all programme areas, partly to secure FDI

The second theme: interconnectedness

- This theme is the one most closely intertwined with energy security
- Two projects: the ASEAN Power Grid (APG) and the Trans-ASEAN Gas Pipeline (TAGP)
 - These demonstrate the relationship between the two themes and are also physical manifestations of interconnectedness

The second theme: interconnectedness

- The APG
 - First named in the Medium-Term Programme
 - Under the ASEAN Vision 2020
 - Purposes:
 - To build “an efficient, reliable and resilient electricity infrastructure” to meet the growing electricity demand and stimulate regional economic growth and development
 - To enhance electricity trade between the AMS
 - Helps meet the rising demand and improve access to energy services
 - To promote the efficient utilisation and sharing of resources
 - Thus, aims to achieve energy security through interconnectedness
 - Construction has begun on bilateral terms

The second theme: interconnectedness

- The APG
 - Six out of 16 projects have been implemented (fourth APAEC)
 - These connect Singapore and Peninsular Malaysia, Thailand and Peninsular Malaysia, and Thailand to Cambodia, Lao PDR and Vietnam
 - 3,489 megawatts (MW) in power exchange and purchase (2014)
- Bilateral, then sub-regional and finally regional
 - HAPUA has identified three Priority Projects for completion and three additional projects to start soon
 - These projects will almost treble the power exchange and purchase to 10,800 MW in 2020 and to 16,000 MW thereafter

The second theme: interconnectedness

- The APG
 - Continues harmonisation efforts
 - APG Transmission System Operator Institution, APG Generation and Transmission System Planning Group Institution
 - Cooperation with ASEAN Energy Regulatory Network (AERN) to carry out various studies, including on taxation and tariffs for cross-border transactions and regulation on public-private participation
 - Thus, the strategies for the 2016-2020 phase involve collaboration between AMS and between various ASEAN entities → part of interconnectedness

The second theme: interconnectedness

- The TAGP:
 - Aims to interconnect gas pipelines within ASEAN for cross-border gas transport
 - Theme of energy security is even more evident here than in the APG
 - APAECs unanimously: ultimate purpose of TAGP is to ensure greater security of gas supply
 - Third APAEC: TAGP brings ASEAN closer to “achieving a long-term security, availability and reliability of energy supply, particularly in oil and gas”

The second theme: interconnectedness

- The TAGP:
 - At the 31st AMEM in 2013, the MOU was extended for another ten years (2014-2024)
 - Response to rapidly rising demand for natural gas and the lack of discoveries of new gas fields
 - Regional demand growing at an annual rate of 7 to 8%
 - Demand is projected to increase from 14.5 BSCFD in 2013 to 23 BSCFD by 2035

The second theme: interconnectedness

- The TAGP:
 - As of 2015, 13 bilateral projects connecting six countries were successfully commissioned
 - In 2012: ASEAN Council on Petroleum (ASCOPE) expanded its strategic direction to include liquefied natural gas (LNG) and Regasification Terminals (RGTs)
 - To further connect the AMS
 - To ensure gas availability in times of shortages

The second theme: interconnectedness

- The TAGP
 - ASCOPE is also working with the US on the Asia Gas Market Workshop
 - US is to share best practices on regulatory frameworks and open access for pipelines and related facilities
 - ASCOPE or ASEAN Gas Consultative Council (AGCC) will work with AERN on academic studies regarding regulatory and legal issues
 - To support ASCOPE's or AGCC's work
 - Collaboration among ASEAN entities and between ASEAN entities and external entities

The third theme: communication

- Definition:
 - Information exchange within ASEAN and between ASEAN and external entities
- Relationship with other themes:
 - More closely connected to the fourth theme of capacity building than to the second
 - Communication indirectly supports the first theme (energy security)
 - Communication is also often the means of facilitating capacity building

The third theme: communication

- Has been on the agenda since the AAEC
- Strategies for achieving communication have been consistent throughout the years:
 - Facilitating information exchange on AMS' policies and programmes
 - Enhancement of awareness on energy sources and ASEAN's policies

The third theme: communication

- Medium-Term Programme:
 - One objective is to “encourage regular exchange of information on the formulation and implementation of energy policies”
 - Called for intensification of information exchange in the oil and gas sector, specifically for products purchase and marketing, exploration and production activities
 - Policy and planning programme: maintenance of a database of energy policies and plans of AMS

The third theme: communication

- The first APAEC (1999-2004):
 - Makes the ASEAN Centre for Energy (ACE) website a one-stop location for all relevant information
 - Calls for compendiums of policies, regulations and producers of the AMS on coal and energy efficiency and conservation (EE&C)
 - Planned for an information network of NRSE technologies expertise, manufacturing capabilities and commercial availability of NRSE products
- The subsequent APAECs reprised and expanded these plans

The third theme: communication

- The second APAEC (2004-2009):
 - The ASEAN Gas Centre (AGC) to develop a knowledge management system for sharing information on the natural gas industry
- The third APAEC (2010-2015):
 - The CNE programme area envisaged exchange of information on strategies and experiences in public education programmes, in creating a knowledge network in the region

The third theme: communication

- The fourth APAEC (2016-2020):
 - Regional Energy Policy and Planning Sub-sector Network (REPP-SSN) aims to improve the ASEAN energy sector's international profile
 - By regular publications that highlight the activities of the SSNs and SEBs, regular regional energy outlooks, ASEAN energy statistics, policy reviews and analyses

The fourth theme: capacity building

- Definition:
 - In ASEAN energy cooperation: development of human resources (including training), infrastructure and technology transfer
- One of the products or means of interconnectedness and also a direct means of ensuring energy security
- Closely related to the theme of communication:
 - Tends to have considerable overlap in the concrete actions for implementation

The fourth theme: capacity building

- Featured in ASEAN's cooperation agenda since the beginning
- AAEC:
 - Member countries are to “endeavour to cooperate in manpower training activities in all fields of energy”
 - Cooperation includes:
 - “training and exchange of expertise in research, development and implementation of energy programmes”
 - “strengthening of relevant existing institutions with programmes in human resources development”
 - “sharing of methodologies, techniques and skills which facilitate the planning, implementation and management of multilateral cooperative programmes”

The fourth theme: capacity building

- Medium-Term Programme:
 - Aimed to “strengthen existing regional institutions ... for energy training and research among member countries, to establish and to form a more effective overall ASEAN energy training, research and development network”
 - Cooperation in human resources development, training, research and sharing of experiences was planned for all energy sectors / areas

The fourth theme: capacity building

- The first APAEC (1999-2004)
 - NRSE programme area sought to “establish an information network of NRSE technologies expertise, manufacturing capabilities and commercial availability of NRSE products”
 - This is an example of how the third and fourth themes are closely intertwined: the establishing of a mechanism for information exchange is often a means of building capacity

The fourth theme: capacity building

- The first APAEC:
 - Regional Energy Outlook, Energy Policy and Environmental Analysis (REOEPEA) programme area:
 - planned capacity-building activities in AMS relating to energy policy analysis and an integrated urban energy-planning programme for key cities

The fourth theme: capacity building

- The second APAEC (2004-2009):
 - Contains examples of concrete actions which achieve both the third and fourth themes
 - (1) the AGC was to serve as the “strategic technical and information resource and capacity building centre in the facilitation and implementation of the TAGP and gas development programmes”
 - (2) special training sessions to facilitate exchange of information on RE technology and successful practice among experienced ASEAN personnel, and bilateral dialogues, training courses and study tours for technical experts
 - (3) linking automotive and related industries with governments to advance technological expertise and R&D activities in biofuels

The fourth theme: capacity building

- The third APAEC (2010-2015):
 - Capacity building was one of the main approaches to achieve its objective, which was to ensure energy security, in support of realising the ASEAN Community
 - The EE&C programme area had capacity building as one of its key strategies
 - Aimed to strengthen cooperation through institutional capacity building and greater private sector involvement
 - Specific actions: building up stakeholders' capacity to implement good energy management and continuing specific activities like the Multi-Country Training Programme on EE&C

The fourth theme: capacity building

- The third APAEC (2010-2015):
 - The CNE programme area focused on capacity building and communication
 - Another example of how the third and fourth themes often work concomitantly in practice
 - Workshops, personnel exchange and technical training were purposed for creating an experience and knowledge network
 - It is thus also an example of strengthening interconnectedness
 - Hence, the second theme can also be a vehicle for achieving the third and fourth themes

The fourth theme: capacity building

- The fourth APAEC (2016-2020):
 - The TAGP, EE&C, RE and CNE programmes affirm and expand the predecessor's plans
 - The Coal and CCT programme plans to continue collaborating with DPs including Japan, Australia and the US in implementing capacity-building activities on advanced CCT and knowledge transfer
 - It also plans a capacity-building framework and financing mechanisms to enhance technical knowledge of clean coal power plants
 - Another example of how interconnectedness can serve to achieve capacity building

The fourth theme: capacity building

- The fourth APAEC:
 - REPP programme area:
 - To improve the quality of data and analysis in energy policy and planning, several programmes in cooperation with relevant DPs and IOs are proposed – a training course on energy policy and planning, another on data analysis and an attachment secondment opportunity on data analysis

Indonesia – overview

- Its energy policy is also primarily concerned with energy security
 - Main reason: declining domestic oil production and rapidly increasing domestic oil demand
 - Is now more dependent on imported oil
 - Became a net importer in 2004
 - Also dependent on imports of oil products, because it lacks domestic refining capacity
- Its import dependency places considerable pressure on its state budget, as the government heavily subsidises a number of oil products at prices lower than international prices

Indonesia – overview

- In response, the government has shifted its focus away from crude oil to development of its natural gas resources, which are significant
- Aims to reduce the share of oil in its future energy mix by encouraging the use of other fuels, particularly in the power and transport sectors
 - Specifically, its National Energy Plan 2014 (NEP 2014) aims for: 30% coal, 22% oil, 23% RE and 25% natural gas by 2025

Indonesia – overview

- That would mean more than doubling the current share of gas, more than trebling that of coal and to expand the use of RE by eleven times
- This is an example of source diversification (an aspect of energy security)
- This paper focuses on Indonesia's laws and policies governing coal and RE
 - Various aspects of energy security are most clearly borne out in these two areas

Indonesia – overview

- Coal is the dirtiest fossil fuel, but it is to become the most used energy source
- Reasons: abundant, increasing production, widely distributed coal reserves, more cost-competitive than other sources
- Increased use of coal, with rampant illegal coal mining and breaches of environmental coal regulations, conflict with the climate change obligations that Indonesia has ratified

Indonesia – overview

- Thus, RE becomes relevant as an alternative means of achieving Indonesia's emissions targets while ensuring energy security
- However, Indonesia faces separate challenges in implementing RE solutions
 - E.g. lack of technical capacity and knowledge, lack of infrastructure
- Strains of the other three themes are also present

Indonesia – coal

- Coal production has considerably increased from 2002 to 2012
 - 6.9% annual growth, which was the greatest among all energy sources
 - 13.9% of total primary energy supply (TPES) in 2012
- Indonesia's coal resources occur in most of its provinces, and about 75% of the recoverable coal reserves can be surface-mined
 - Thus, coal is more equitably distributed than crude oil and gas resources
 - Thus, also faces fewer transportation issues

Indonesia – coal

- Its coal reserves seem to be increasing
 - Resources
 - 2010: 105,188 Mt
 - 2013: 120,571 Mt
 - Reserves:
 - 2010: 21,132 Mt
 - 2013: 31,357 Mt
- The abundance of coal makes it a primary component of Indonesia's electrification efforts

Indonesia – coal

- Challenges faced:
 - (1) Illegal mining
 - (2) Permits issued without sufficient due process
 - (3) Inadequate transport infrastructure
- Illegal mining
 - By local residents who have not received permits from their village unit co-operatives
 - Dramatically increased over the past decade
 - At least 30 to 50 Mt lost annually

Indonesia – coal

- Illegal mining
 - Potential consequences are serious
 - Could undermine national energy policy as it casts uncertainty on the coal reserves and production data, which are the basis of the policy
 - Forest degradation, water and air pollution
 - Depletion of finite coal reserves
 - This could in turn be a major constraint on national energy plans, which do not allow for significant coal imports
 - Furthermore, coal exports contribute significantly to the economy, so directing more of the coal production to domestic consumption is also controversial

Indonesia – coal

- Permits issued without sufficient due process
 - Many of these permits contradict the public's interests and the mining done thereunder causes environmental damage
 - Because more than 99% of Indonesia's coal is surface-mined, large areas of forested and agricultural land would be affected, adding to the land-based carbon dioxide emissions
 - In addition, contaminated water discharged from coal mines can potentially harm fisheries, agriculture and people using the water
 - Daily coal loading and transport operations along the Mahakam River potentially exposes more than a million people to coal dust blown off the uncovered coal barges

Indonesia – coal

- Underlying cause of the first and second challenges:
 - Poor enforcement of laws
 - Main relevant law: Law on Mineral and Coal Mining (2009) (the “2009 Law”)
- These two challenges pose a significant threat to energy security
 - Threatens the prospect of an adequate supply and also threatens environmental ramifications

Indonesia – coal

- The 2009 Law had introduced significant changes
 - The revision of the contracting and licensing process, the recognition of 100% foreign investment, a tender process, a ban on raw materials exports and a value-added policy
- The poor enforcement is in turn caused by:
 - Decentralisation of power to the local governments
 - Under the 2009 Law, each level of government can issue mining permits
 - In 2012, the Constitutional Court decided that regional governments have the first right to determine whether areas under their jurisdiction should be designated as mining areas
 - Central government will then consider these decisions for final approval

Indonesia – coal

- Decentralisation of power to local governments:
 - Law No. 32/2004 transferred the power of permitting and oversight of mining activities from the Ministry of Energy and Mineral Resources (MEMR) to provincial and district governments
- In fact, the 2009 Law allows the central government to set production quotas for coal mining for each province, and requires local governments to comply therewith
 - Unfortunately, there is poor enforcement

Indonesia – coal

- Various problems with the civil service which prevent effective implementation of laws
 - No clear-cut division of authority, both horizontally (between ministries) and vertically (between the central government and local governments)
 - Thus, policy overlap is common in most large ministries
 - This overlap has resulted in conflicting regulations and even the meddling by provincial governments in the affairs of district or city governments
 - Disparity in the quality of human resources between central and local governments and between different regions
 - Moreover, limited mobility of employees between regions
 - Also, there's prioritisation of the interests of local indigenous people in recruitment and promotion
 - Thus, regions that have low-quality human resources remain backward

Indonesia – coal

- There is a large gap between the leadership and staff in the bureaucracy
 - In certain agencies, bureaucrats who have direct impact on policy implementation seldom execute policies in the spirit of their leaders' decisions
 - This is due both to their low capacity of understanding and deliberate taking advantage of the shortcomings that arise from non-implementation
- No punishment for under-performance in the public bureaucracy
- In some institutions, many officials who have leadership capacity lack authority to effect changes, while the converse is also true

Indonesia – coal

- Inadequate transport infrastructure
 - Would affect the country's ability to satisfy the energy demand
 - Currently, coal is transported to seaports largely by trucks via private haul roads, rail wagons, river barges and conveyors
 - Because there is public opposition to the use of public roads for coal transport, due to safety concerns and the deterioration of roads caused by the heavier vehicles used for coal transport

Indonesia – coal

- Suggested solutions:
 - Enforcement of the 2009 Law can be improved by:
 - Renegotiating contracts that had been concluded before the coming into force of the 2009 Law, to bring them in line therewith
 - Establishing mine rehabilitation funds
 - Ensuring correct payment of royalties and correct demarcation of mining concession
 - Better coordination of the various government agencies
 - Clear and transparent separation of powers and responsibilities with clear reporting lines and decision-making

Indonesia – coal

- Good way to start: establish a reliable and comprehensive database on coal concessions, production and trading
- Increased capacity-building efforts for local governments
- Sanctions enacted for under-performance
- Rules on discretion to encourage bureaucrats to act in the public interest
 - Currently, bureaucrats can only act under a mandate
 - Where there are no regulations in place, such rules would give bureaucrats a sense of security, as they would otherwise be potentially exposed to serious implications for making administrative mistakes

Indonesia – coal

- Improve the transport infrastructure
 - The government is now planning new railways such as a 422km publicly owned railway in Kalimantan and a double-track project on Java
 - These will help to decrease the dangers to road safety and health, which stem from open truck transport
 - In addition, there should be better regulation of barge transport to reduce health risks
- Better transport infrastructure will also make the Indonesian coal sector more attractive to foreign investors, including those from other AMS
 - Thus, it would encourage greater intra-ASEAN trade in coal, which was one of the focal points of the APAEC 2016

Indonesia – Renewable Energy (RE)

- Generally, it has large and diversified potential for RE
 - But only about 5% is being exploited
 - Also, most of its RE resources are located far from its demand centres
- But it holds around 40% (or 28 GW) of the world's geothermal reserves, about 32 GW of potential biomass reserves, 75 GW of hydro energy resources and solar energy potential of about 1200 GW electrical capacity

Indonesia – RE

- RE has played, and will continue to play an important role in Indonesia's energy policies
 - In view of increasing world oil prices, decreasing domestic oil production, increasing energy demand and social and environmental considerations
- It has also set ambitious targets:
 - Aims to install geothermal capacity of 9,500 MW by 2025, up from 1,400 MW in 2013
 - New mandatory targets for biofuel blending in transport fuels:
 - 25% in 2025, up from 10% in 2014
 - 1,000 MW peak installed solar photovoltaic (PV) capacity by 2025

Indonesia – RE

- In 2014:
 - RE made up about 11.4% of electricity generation and 34.4% of TPES
 - This 34.4% was made up of biofuels and waste (26.2% of TPES), geothermal, solar and others (7.65%) and hydropower (0.578%)
 - Geothermal energy registered the fastest growth among renewables from 2002 to 2012, at 4.2%
- Considerable efforts to encourage RE projects:
 - PLN, the national electricity utility, is obliged to buy electricity generated from RE produced by independent power producers
 - The term of these purchase contracts is usually ten years or longer

Indonesia –RE

- Feed-in Tariffs (FITs) are available for most renewables
- Established the Clean Technology Fund (CTF) in 2009, endowed with USD 400 million, to promote RE, improve electrification rates and enhance energy efficiency
- Implemented a scheme of development credits for biofuels and plantation revitalisation
 - Which hands out low-cost loans to farmers and farmer groups who plant energy crops
- Reduced income taxes on energy development projects
- Financial guarantees for geothermal and hydropower plant projects

Indonesia – RE

- Financial instruments from World Bank, Asian Development Bank (ADB), bilateral institutions from France, Germany, Japan, the Netherlands and New Zealand to make more lower-cost financing available for geothermal development projects
- Concessional loans from World Bank, the CTF and investment funds from Pertamina

Indonesia – RE

- Challenges faced in realising full RE potential:
 - Geothermal projects: about 42% of geothermal reserves are located in forest conservation areas, in which mining activities, including geothermal exploration, require presidential approval
 - However, Indonesia is revising its geothermal law so that projects will no longer be considered mining operations
 - Most of Indonesia's hydropower potential is located far from demand centres
 - Thus, only 5% of the total potential is installed as capacity
 - Many of the mini and micro-hydro plants that can play a significant role in rural electrification are not operating due to lack of local expertise and maintenance

Indonesia – RE

- Knowledge of solar PV technology is still rudimentary among local government authorities, enterprises and financial institutions
 - PV system costs are still comparatively higher than more developed markets
 - Local supply chains require further development
 - Grid-connected applications may require upgrading of local low-voltage grids
 - Poor planning coordination between PLN and regional entities
- Government approval procedures cause significant delays and often cancellations of RE projects
 - Particularly those concerning land acquisition and land ownership
 - Project developers are required to receive approval at both national and regional levels of government

Indonesia – RE

- After decentralisation, local governments now have more authority, including over the administration of project tenders
 - However, they often lack transparency and the requisite capacity
 - Project tenders are often poorly worded and unclear in their requirements
 - These documents have been changed or reworded after being opened for tender, indicating a lack of transparency that discourages competitive bidding
 - Inconsistency between various national and local laws and regulations
- Lack of experience in private financing of long-term RE projects
 - Still no access to loans beyond a five-year period

Indonesia – RE

- Difficulties in integrating the country's renewable generation
 - Underdeveloped grid
 - Widespread distribution of resources across the archipelago
 - Poor interconnection
- FIT system may not be economically sustainable for the long term
 - Unless the government increases fixed and regulated end-user energy prices
 - Currently, there is a price differential between the average end-user price and the average FIT rate or the price at which PLN must purchase electricity, which adds to PLN's financial burden
 - Dilemma: to incentivise more investment in RE, it must keep the FIT high enough, but unless it also increases end-user prices, it will have to provide increasing subsidies to PLN to cover its deficit

Indonesia – RE

- Fossil fuels are highly subsidised
 - In particular, coal-fired electricity generation from low-grade domestic resources can cost less than half that of renewable resources
 - For PLN too, coal is much more economical as a generation source
 - So it may turn to coal for its own production, in order to reduce its losses from the disparity between renewable generation costs and end-user prices

Indonesia – evaluation

- Energy security is the predominant concern
- However, also frequent refrains of the third and fourth themes – communication and capacity building
 - Communication: needed to help the government agencies coordinate with each other
 - Capacity building: local governments need to enhance capacity for:
 - Enforcement of deforestation policies
 - Private financing of long-term RE projects
 - Operation of mini- and micro-hydro plants, solar PV technology
 - Administering project tenders

Indonesia – evaluation

- Small hints of the second theme (interconnectedness)
 - One challenge is to build adequate transport infrastructure
 - Coal transport is currently done largely by trucks via private haul roads, rail wagons, river barges and conveyors
 - Difficulty of integrating Indonesia's RE generation, due to widespread distribution of resources
 - Limited grid planning and investment, and transmission constraints
- Ensuring that the second to fourth themes are properly addressed is the means to ensuring energy security (the first theme)

Conclusion

- Thematised ASEAN's energy cooperation agenda
 - To identify the AMS' key concerns and motivations
- Shown that energy security is the primary concern for ASEAN and Indonesia
- Indonesia needs better enforcement of its laws and policies, better inter-agency coordination, and more capacity building in order to ensure energy security

Matters for future research

- Application of ASEAN energy policies to other ASEAN member states
- How the increasing legalisation and institutionalisation of ASEAN will shape its energy cooperation agenda
- How ASEAN energy cooperation might be theorised
 - Multifaceted nature of energy as a policy area