SABAH ELECTRICITY SDN. BHD. (462872-W)

4TH NATIONAL ENERGY FORUM
"Building a Framework Towards Sustainable Energy Future"

27th September 2012
Sheraton Imperial Hotel, Kuala Lumpur

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Panel Discussion 3
"Key Issues & Challenges For Effective Framework"

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YBhg. Tan Sri Yong Poh Kon, President FMM

From SESB's perspective

- In formulating effective framework, Sabah and Sarawak needs to be engaged from the early stage.

- This is because Sabah and Sarawak are different from Peninsular Malaysia in terms of economic activities, affordability of the people, geography, demography, while rich in renewable energy resources.

- The policies and regulations may also need to cater to the different situations in Sabah and Sarawak. (For instance, the implementation of Renewable Energy Act/Feed In Tariff was done without prior consultation with stakeholders in the two states. In terms of size, the electricity grid in Sabah is very much smaller than Peninsular Malaysia, and the size selection of solar plants to be connected to the grid system may cause stability issues although in Peninsular it would be considered insignificant).

From SESB's perspective

Implementing feed-in tariffs

- There is a delay in the implementation in Sabah due to postponement of the 1% FiT levy on electricity tariff. The State Government has in principle agreed to contribute to RE fund through State GLC but some issues have yet to be resolved (such as RE quota). There is a need to engage the state government and SESB early to ensure smooth implementation.

- The implementation is closely linked to availability of FiT fund, which is dependent on the levy collection through electricity tariff. Thus, the tariff review mechanism needs to be put in place and on regular intervals (not on ad-hoc basis).

- In the absence of adequate FIT fund for Sabah, government subsidy to fund feed-in tariff may be needed to encourage RE growth in Sabah. It is economically justified to subsidize RE generation which is still lower than the current subsidy for diesel.

- By the same token, it is hoped that the government would consider to give higher quota allocation for RE implementation in Sabah, due to its more urgent generation plant up needs and the rich RE potential in Sabah.

From SESB's perspective

Energy Consumption and environment, Energy Efficiency

- Based on the Sabah Development Corridor blue print for development of Sabah, one of the main thrust is "**Increase Value Capture of Sabah's Resources in Downstream Manufacturing Activities".** It is foreseen that the energy growth (%) will be relatively high if the enablers to support the SDC is in place.

- For SESB, it is very much in our interest to support **Energy Efficiency** as a strategic thrust to reduce or slow down the high capital cost for generation plant up. Correct pricing signal is needed for effective implementation of EE. This was also reflected in our recent tariff review. However, the right framework to encourage Energy Efficiency by industrial and commercial sectors and all levels of society is crucial.

- Education, Awareness must be aggressively carried out at all levels, beginning at the primary education level. To be effective, a culture change is required. (e.g. Japanese cabinet – wearing short sleeve wear to cabinet proceedings, can lower A/C usage – lead by example)

(a) On what has been done on EE (by SESB):

- Awareness campaign (during launching of MSAM few months ago),
- energy audit demo project on two commercial buildings (July-Aug 2012),
- EE Forum & talks to mitigate impact of tariff review last year,
- Sabah EE Steering Committee,
- first Green PMU adopting GBI design criteria,
- promotion of government's SAVE program & EE awareness through SESB website,
- donation of EE appliances to charity organisations, Rakan EE (although not active)

From SESB's perspective

(b) **Challenges of EE:**

(i) Tariff kept very low (political consideration) : majority of SESB's domestic customers below 350kWh/month – artificially low tariff for this category may not encourage adoption of EE practice,

(ii) Lack of EE/energy labelling on most electrical appliances (except for certain model of air-cond & refrigerator);

(iii) Lack of EE campaign on electronic media (tv, radio etc)

(iv) Lack of Nation wide emphasis or enforcement; may be not considered NKRA thus no KPI (eg each person to reduce 1kg of CO2 per day), which is a pity since EE is considered the 5^{th} or 6^{th} fuel.

(v) Inefficient appliances(air-cond/freezer) still available in the market (from China??) – given the choice, most customers will opt for lower investment upfront & would not care about the future saving (on electricity bills) or the environment.

(c) **Future outlook on EE**:

As fuel price increase, electricity will also increase (unless there is a breakthrough in technology) – customers will have no choice but to implement some EE measures – in the hope that prices of EE appliances will drop further & be more affordable. However EE (& even RE) not expected to replace conventional fuel any time soon unless there is strong regulatory framework and enforcement, and also incentives to implement these.

From SESB's perspective

Pricing Reform – Impact on consumers and ways to mitigate adverse impact

- Pricing reform will undoubtedly have an adverse impact on consumers, especially as the earning power of Malaysians have shown a downward trend amidst the global economy.
- Ways to mitigate would include staggered implementation of the reforms, coupled with a comprehensive and integrated approach to realize the 'high income' nation, i.e. increase affordability of the people,
- Review and improve infrastructure and public services, such as public transport (to reduce the no. of cars on the road),
- Improve economic efficiency by reducing wastage, and increase efficiency and productivity in all areas.

Power Sector : Balancing sustainability with affordability – opportunity and challenges

- The rich natural resources in the country, and In Sabah is still largely untapped, e.g. the hydro potentials in Sabah.
- The economic challenges in developing large hydro projects due to its large capital investment which has to compete against thermal plants with fuels that are subsidized; since large hydro projects >30MW are not covered in FiT and REPPA.
  - Perhaps a national policy providing incentives and reliefs to stimulate developments of larger hydropower plants (e.g. tax relief etc.)?

From SESB's perspective

Power Sector : Balancing sustainability with affordability – opportunity and challenges

- In considering the FiT implementation, natural resources requiring cheaper technology or lower development costs to be given higher priority first? (e.g. solar power requires much higher development cost compared to other RE sources)

Do we have sufficient feedstock to ensure security of energy supply?

- Gas allocation for domestic power generation use is a concern, not so much on adequate reserves. This is related to the demand for gas in the market, as natural gas (LNG) can provide high revenue for the country. In comparison, by utilising gas for domestic power generation, the country has to forego revenue which it would have derived from market sales. As gas will still constitute a major component of Sabah's energy mix, it is hoped that clear policies and legislation will be in place to balance the power needs of the state and the affordability of the people.

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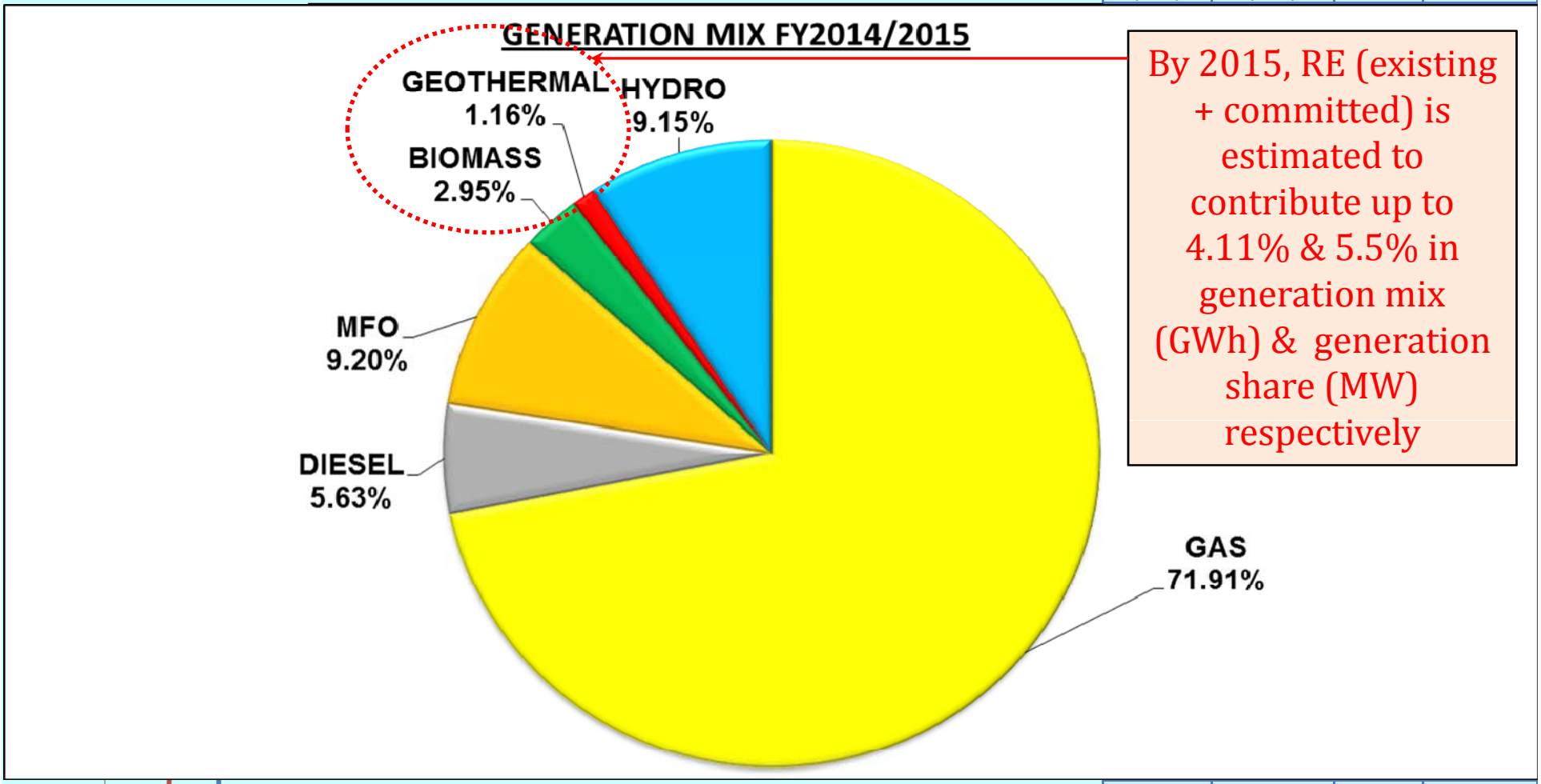
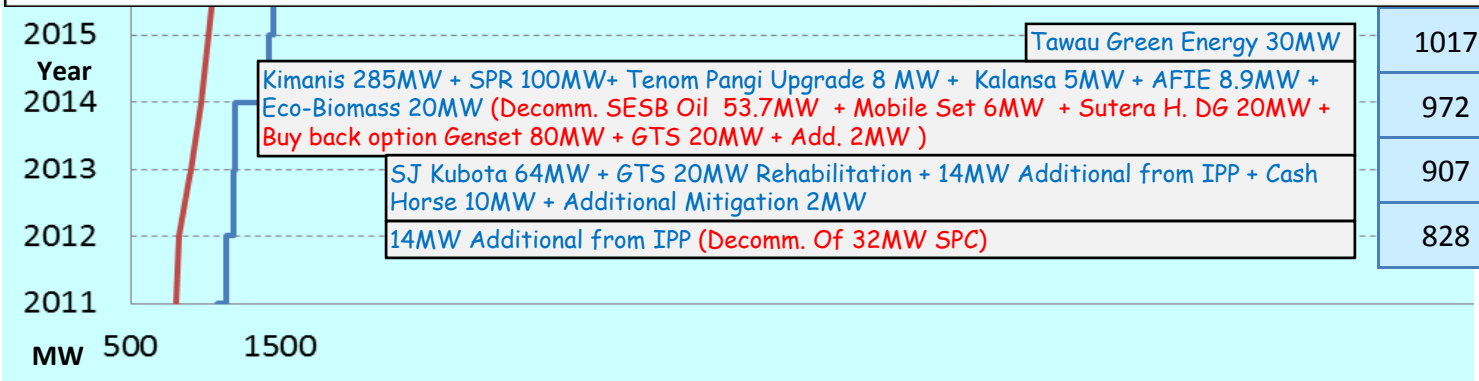
RE Potential & Development In Sabah – Towards A Sustainable Energy Future

SESB Generation Plant-Up to Meet Demand



By 2015, RE (existing + committed) is estimated to contribute up to 4.11% & 5.5% in generation mix (GWh) & generation share (MW) respectively



Load Forecast (MW)	Dependable Capacity (MW)	R. Margin (%)	LOLE (days/year)
1017	1460	44	0.117
972	1430	47	0.073
907	1198	32	1.475
828	1186	43	**3.165**

Legend:
- Dependable Capacity (MW)
- Load Forecast (MW)

RENEWABLE ENERGY DEVELOPMENT IN MALAYSIA

8th Malaysia Plan (2001 - 2005)

- RE as the 5th Fuel
- Implied 5% RE in energy mix

9th Malaysia Plan (2006 – 2010)

- **Targeted RE capacity to be connected to power utility grid:**
  - 300 MW – Peninsular Malaysia; 50 MW - Sabah
- **Targeted power generation mix:**
  - 56% natural gas, 36% coal, 6% hydro, 0.2% oil
  - 1.8% Renewable Energy
- Carbon intensity reduction target: 40% lower than 2005 levels by 2020

RE as of 31st December 2010

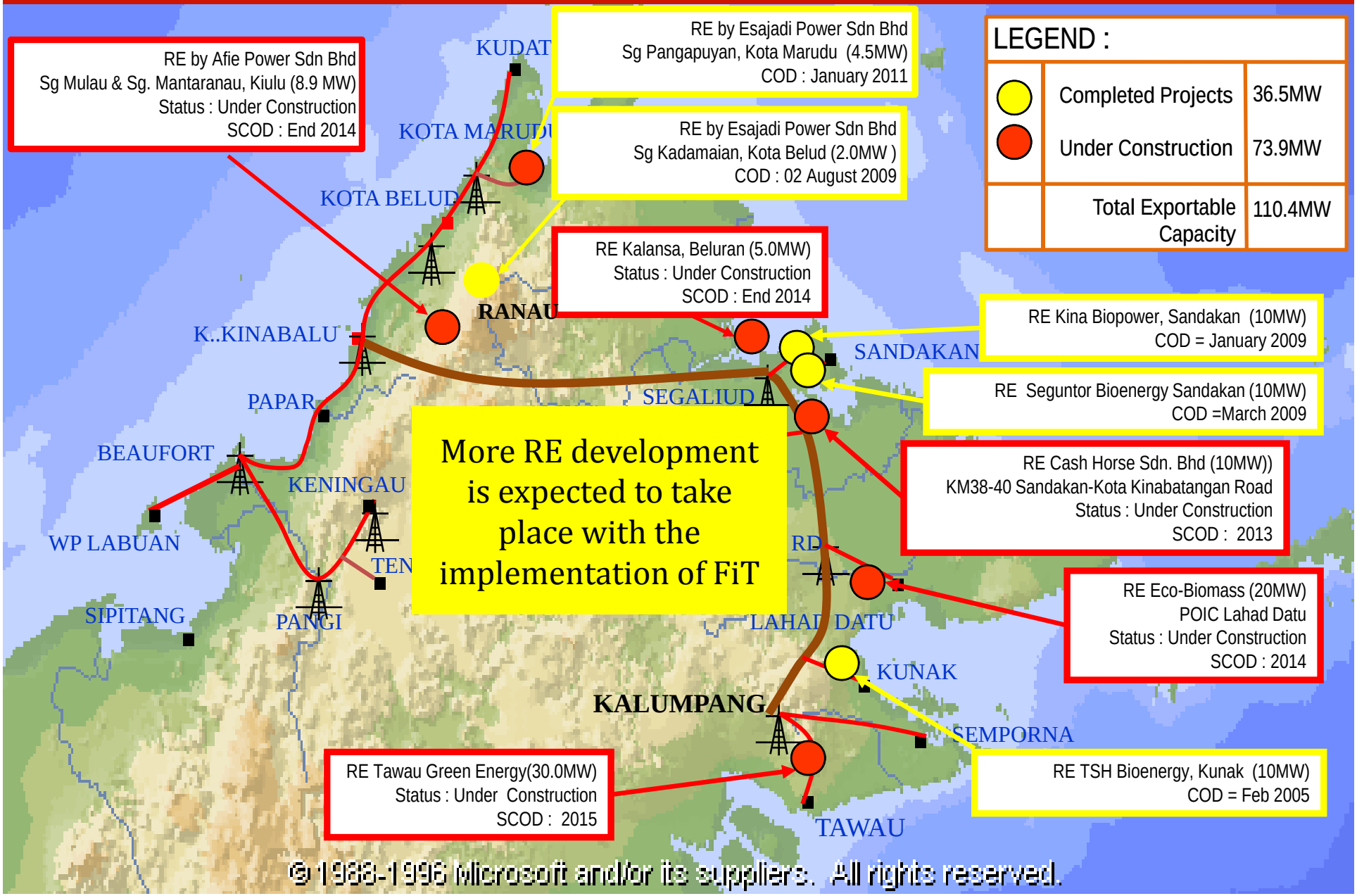
- Connected to the utility grid (as of 2010): **61.2 MW (17.5%** from 9th MP target) – **32MW** in **Sabah**
- Off-grid**:** >430 MW (private palm oil millers and solar hybrid)

10th Malaysia Plan (2011-2015)

- New RE Policy and Action Plan T
- Target: 985 MW of RE by 2015 (~5.5% of energy mix)

Source: Ministry of Energy, Green Technology and Water, Energy Commission

RENEWABLE ENERGY PROJECT IN SABAH



FEED-IN TARIFF (FIT) MECHANISM

- A mechanism that allows electricity that is produced from indigenous RE resources to be sold to power utilities at a fixed premium price and for specific duration governed by Renewable Energy Act 2011 commencing 1 December 2011.

- The implementation agency is the Sustainable Energy Development Authority (SEDA)

- The type of RE will cover as such and limited to a maximum of 30MW per site:-
  - Biogas,
  - Biomass,
  - Mini Hydro and
  - Solar PV

FEED-IN TARIFF (FIT) – ISSUES & CHALLENGES

ASPECT	ISSUES & CHALLENGES	WAY FORWARD
FINANCIAL	1. RE fund for payment 1.1 Commitment of payment for whole concession 1.2 Insufficient contribution from customer in Sabah (~ RM10Mill/yr) 2. Cash flow issue of SESB (i.e. timely reimbursement)	1.1 Commitment governed under RE Act 2011. 1.2 Preliminary from other source of fund (~ State Govt. through State GLCs contribution) 2. Mechanism of payment to be further discussed with SEDA
ADMINISTRATION & MANAGEMENT	1. Priority of FiT quota to the existing/REPPA signed RE 2. Public Awareness on 1% contribution	1. Only operational RE given quota by SEDA. Other to apply as new FIAH applicant. 2. To intensify public awareness campaign
TECHNICAL	1. Power System Study 2. Protection Coordination Study 3. RE critical contribution in Sabah Generation Capacity 4. Metering & Billing	1. & 2. Challenges/issues to be further discussed with SEDA 3. Committed RE put in Generation Plant Up & quota to be further discussed with SEDA 4. To be further discussed with SEDA

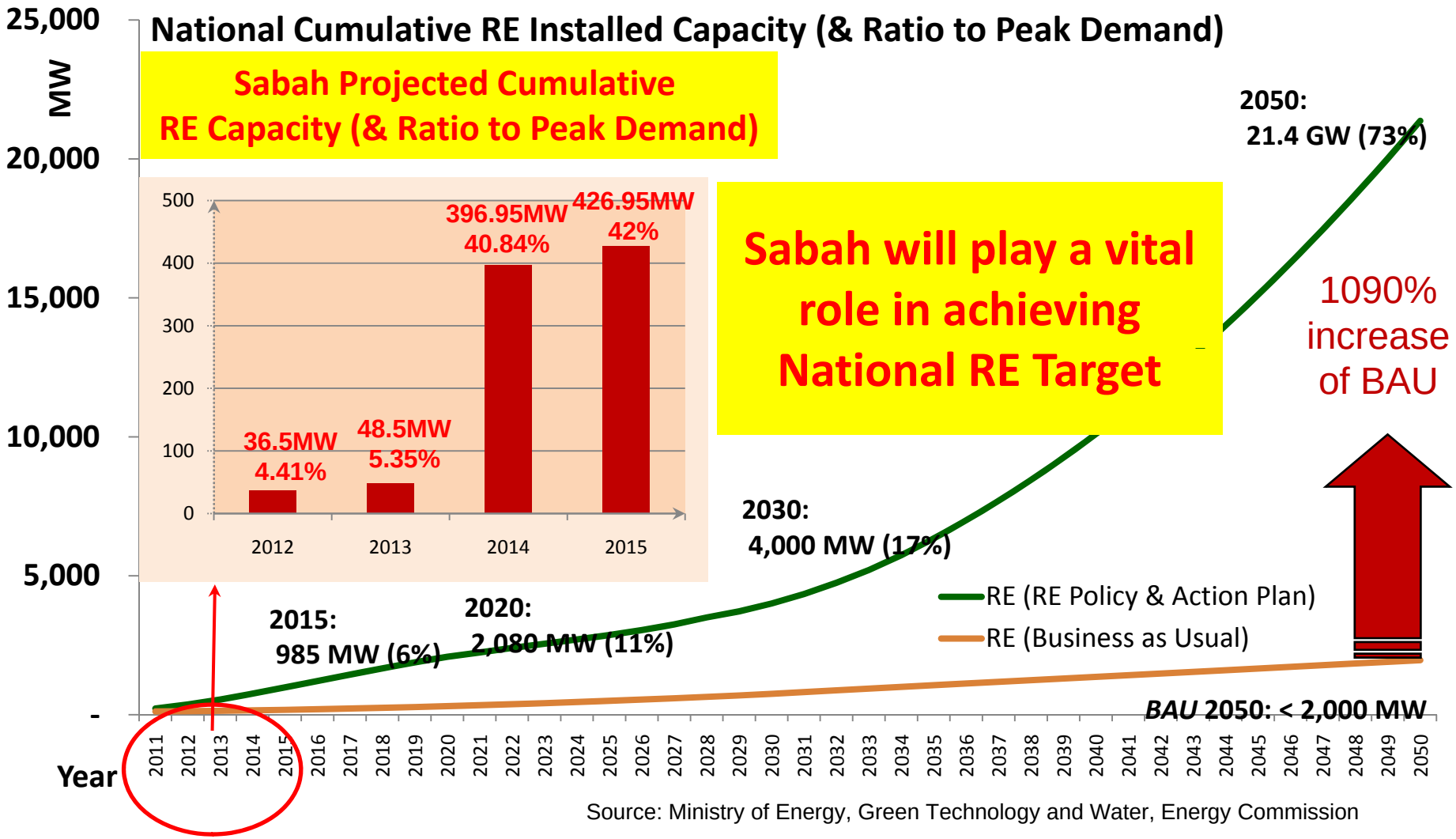
RE DEVELOPMENT POTENTIAL UNDER FiT IN SABAH

No	Type of RE	No. Of Proposal	Proposed Capacity (MW)	Potential COD
1	Biomass	17	248.4	2014
2	Biogas	1	2	2013
3	Solar	13	100.05	2014
4	Municipal Waste	1	TBA	TBA
5	Hydro	3	30++	2015
GRAND TOTAL		35	380.45++	

Number of proposal increase from 20 in Feb 2012 to 35 in Sept 12

~ 37% of peak demand in 2015

RE Policy & Action Plan: Targets



Source: Ministry of Energy, Green Technology and Water, Energy Commission

Note:
1) All RE proposals assumed to obtain FiT quota in respective COD year
2) Capacity includes existing/committed RE project