SABAH ELECTRICITY SDN. BHD. (462872-W)

SESB's Perspective on "Challengers and Prospects in Enhancing Malaysia Energy Security"

Presenter :
Ir. Abdul Nasser Abdul Wahid
Senior General Manager (Asset Development)

28 February 2012

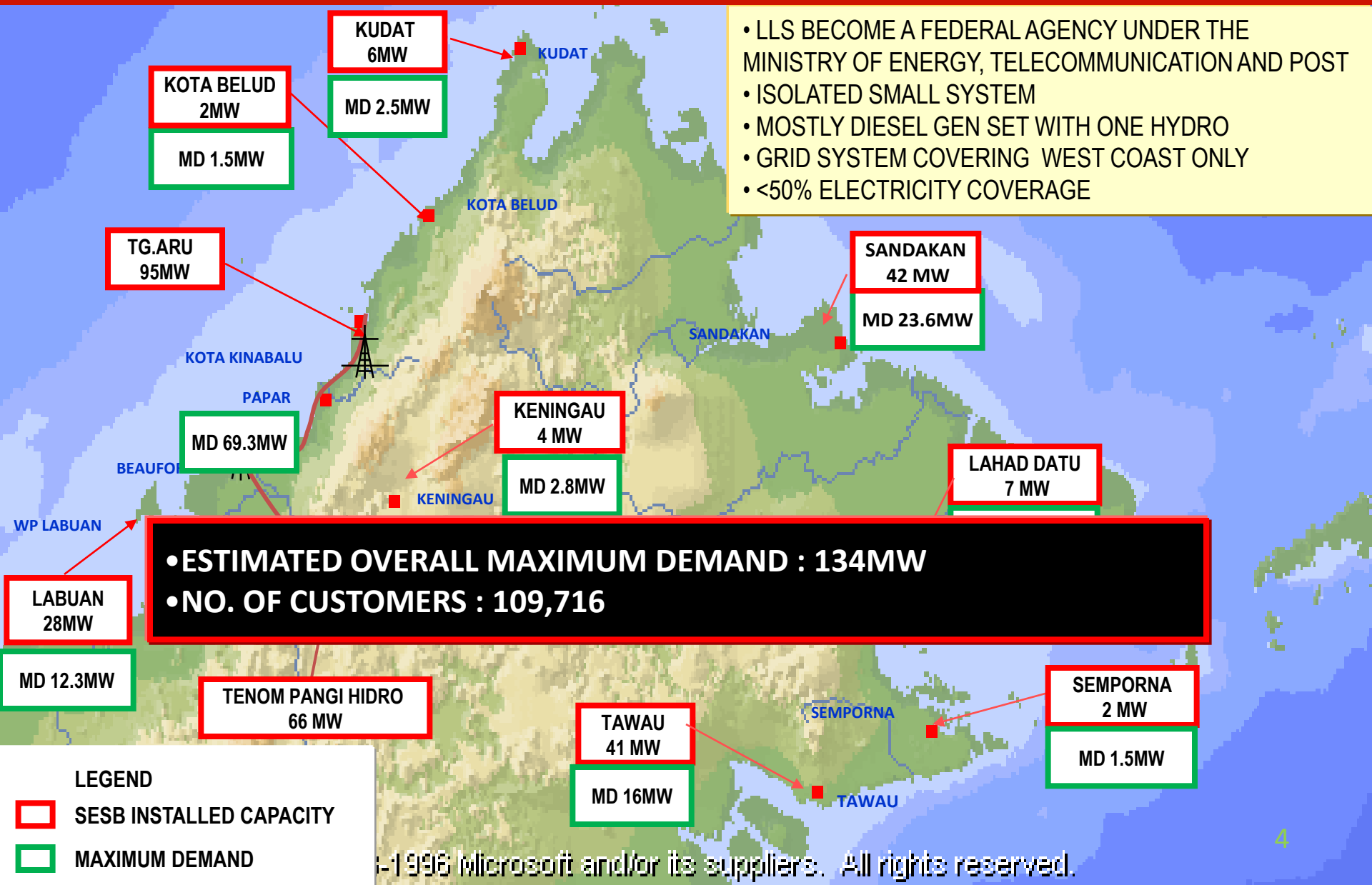
Presentation Contents

- **SUPPLY AND DEMAND GROWTH**
- **CAPITAL INVESTMENT & OPERATING SUBSIDY**
- **WAY FORWARD**
  - **FUTURE DEVELOPMENT**
  - **RENEWABLE ENERGY DEVELOPMENT**
  - **DEMAND SIDE MANAGEMENT**
  - **ENERGY EFFICIENCY**
- **CONCLUSION**

SABAH ELECTRICITY SDN. BHD. (462872-W)

SUPPLY & DEMAND GROWTH

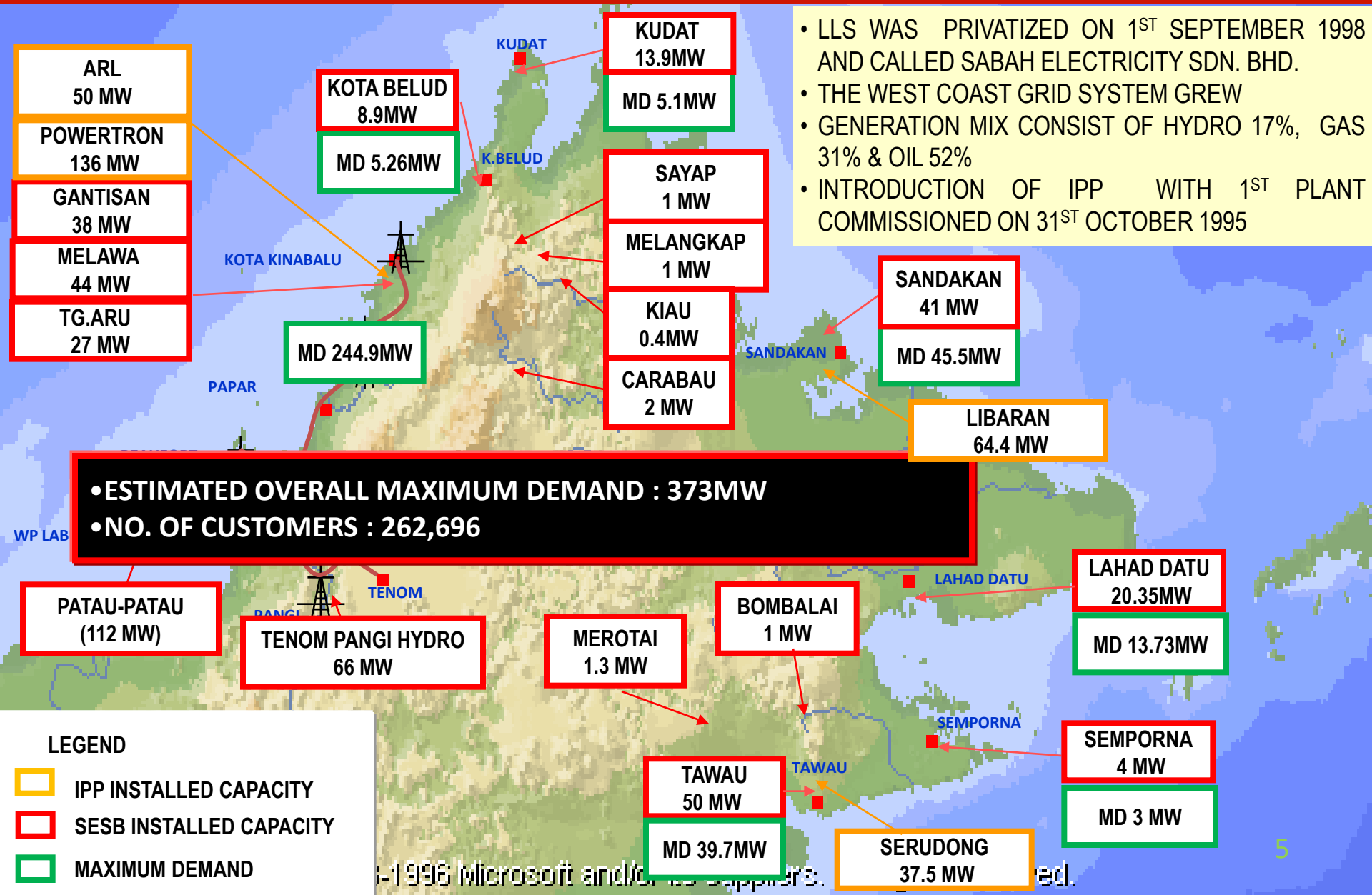
ELECTRICITY SUPPLY SYSTEM SABAH 1984



- LLS BECOME A FEDERAL AGENCY UNDER THE MINISTRY OF ENERGY, TELECOMMUNICATION AND POST
- ISOLATED SMALL SYSTEM
- MOSTLY DIESEL GEN SET WITH ONE HYDRO
- GRID SYSTEM COVERING WEST COAST ONLY
- <50% ELECTRICITY COVERAGE

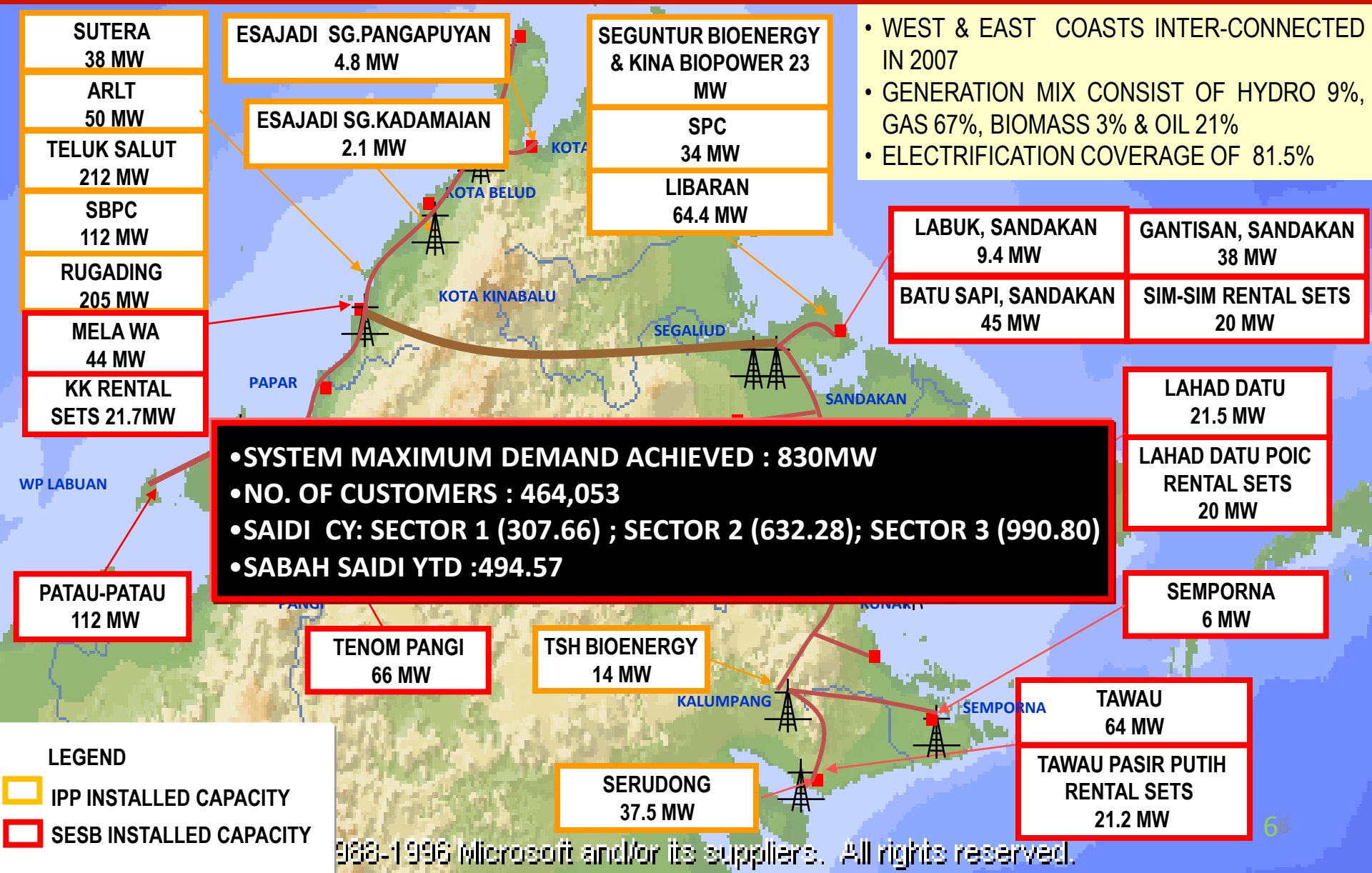
- **ESTIMATED OVERALL MAXIMUM DEMAND : 134MW**
- **NO. OF CUSTOMERS : 109,716**

ELECTRICITY SUPPLY SYSTEM SABAH 1998



- LLS WAS PRIVATIZED ON 1ST SEPTEMBER 1998 AND CALLED SABAH ELECTRICITY SDN. BHD.
- THE WEST COAST GRID SYSTEM GREW
- GENERATION MIX CONSIST OF HYDRO 17%, GAS 31% & OIL 52%
- INTRODUCTION OF IPP WITH 1ST PLANT COMMISSIONED ON 31ST OCTOBER 1995

ELECTRICITY SUPPLY SYSTEM SABAH (As of Dec 2011)



- WEST & EAST COASTS INTER-CONNECTED IN 2007
- GENERATION MIX CONSIST OF HYDRO 9%, GAS 67%, BIOMASS 3% & OIL 21%
- ELECTRIFICATION COVERAGE OF 81.5%

- SYSTEM MAXIMUM DEMAND ACHIEVED : 830MW
- NO. OF CUSTOMERS : 464,053
- SAIDI CY: SECTOR 1 (307.66) ; SECTOR 2 (632.28); SECTOR 3 (990.80)
- SABAH SAIDI YTD :494.57

MANUFACTURING: Sabah will leverage its natural resources as feedstock to capture value in downstream activities

Industrial Corridor


Wood-Based Industry Cluster


SABAH DEVELOPMENT CORRIDOR

POIC Sandakan


Business Link Centres

Sabah Oil and Gas Terminal

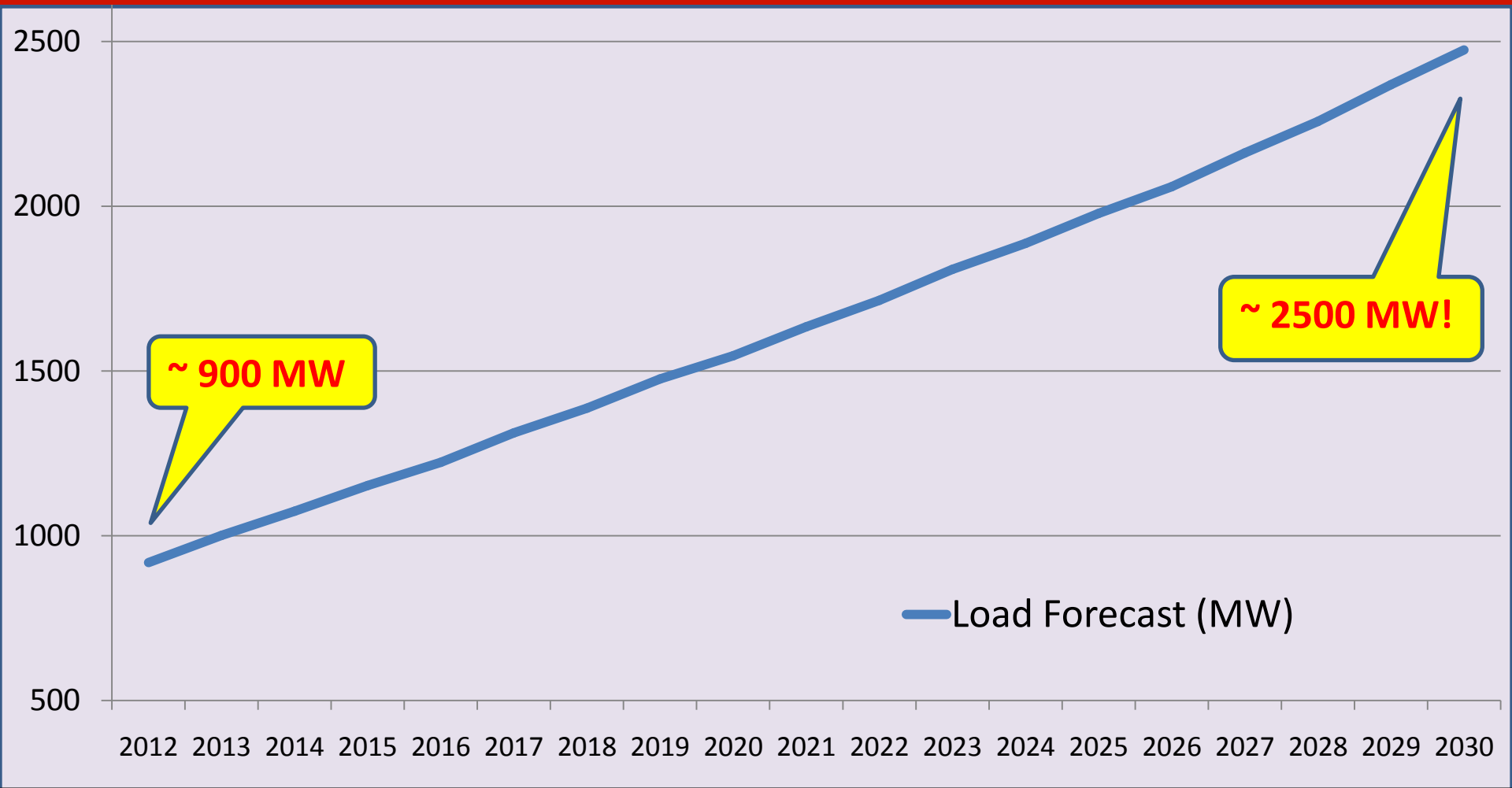
Minerals Based Industry

Sipitang Energy Intensive Cluster


POIC Lahad Datu

Incentives

Load Forecast 2012-2030



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Load Forecast (MW)	918	1,001	1,074	1,152	1,223	1,312	1,387	1,476	1,546	1,634	1,714	1,808	1,887	1,978	2,059	2,162	2,257	2,369	2,474

SABAH ELECTRICITY SDN. BHD. (462872-W)

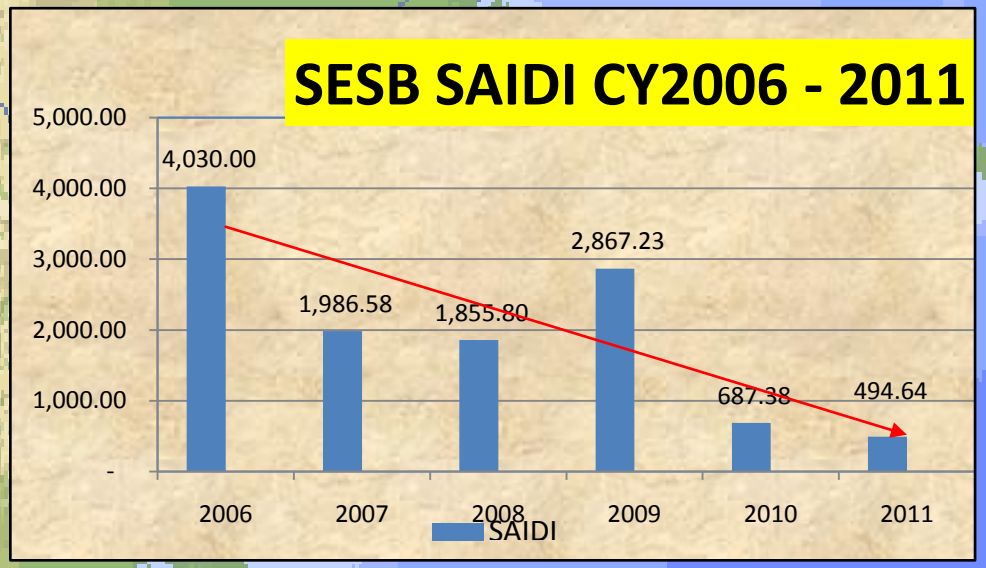
CAPITAL INVESTMENT
&
OPERATING SUBSIDY

Capital Investment (CAPEX)

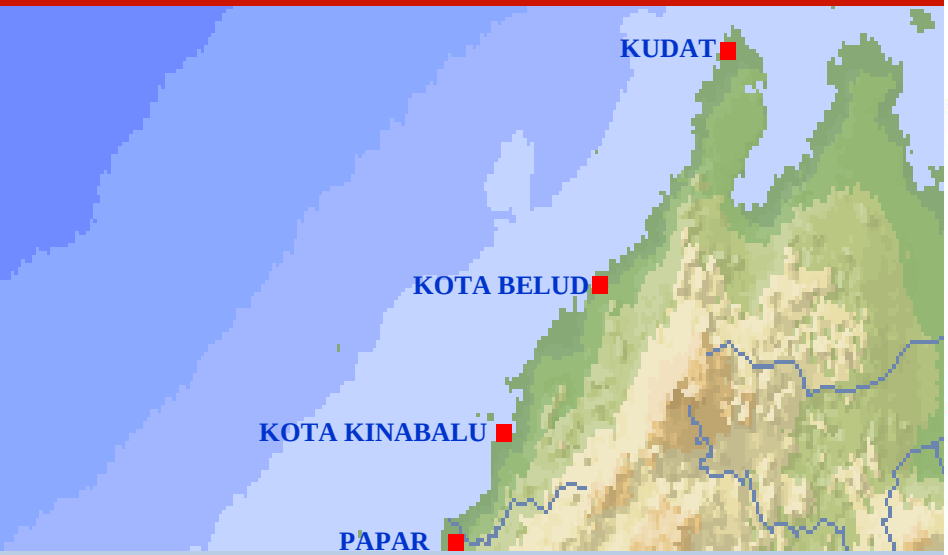
• Over the last 15 years a total of RM 5.3 Billion had been invested by the Government and Private Investor in the development of Generation, Transmission, Distribution Projects And IPP/SREP projects.

•IN 2010 a special budget allocation of **RM 419.5 Mill** for the **'SAIDI 700'** was approved by the Government. Subsequently **RM200Mill** in 2011 under **'SAIDI 477'** and **RM88Mill** in 2012 for '**SAIDI 367'.**

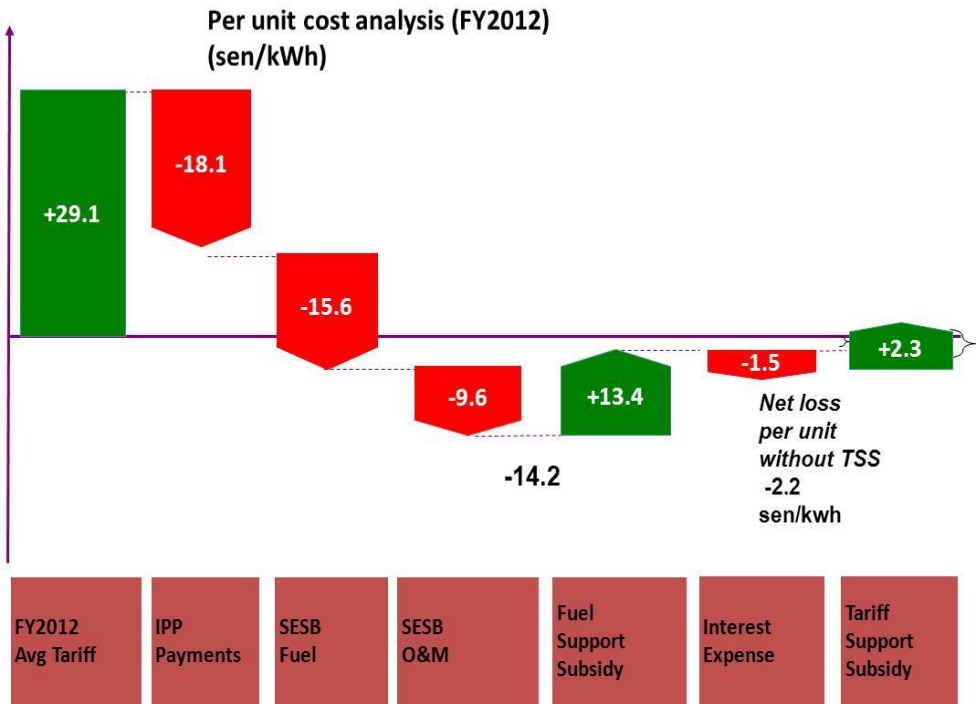
SANDAKAN



Cost of Production (OPEX)

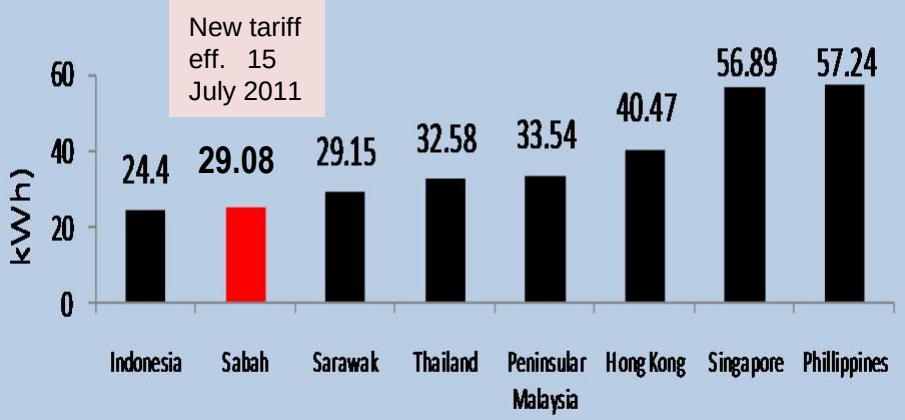


Expected Cost of Production Vs. Tariff (FY2012)

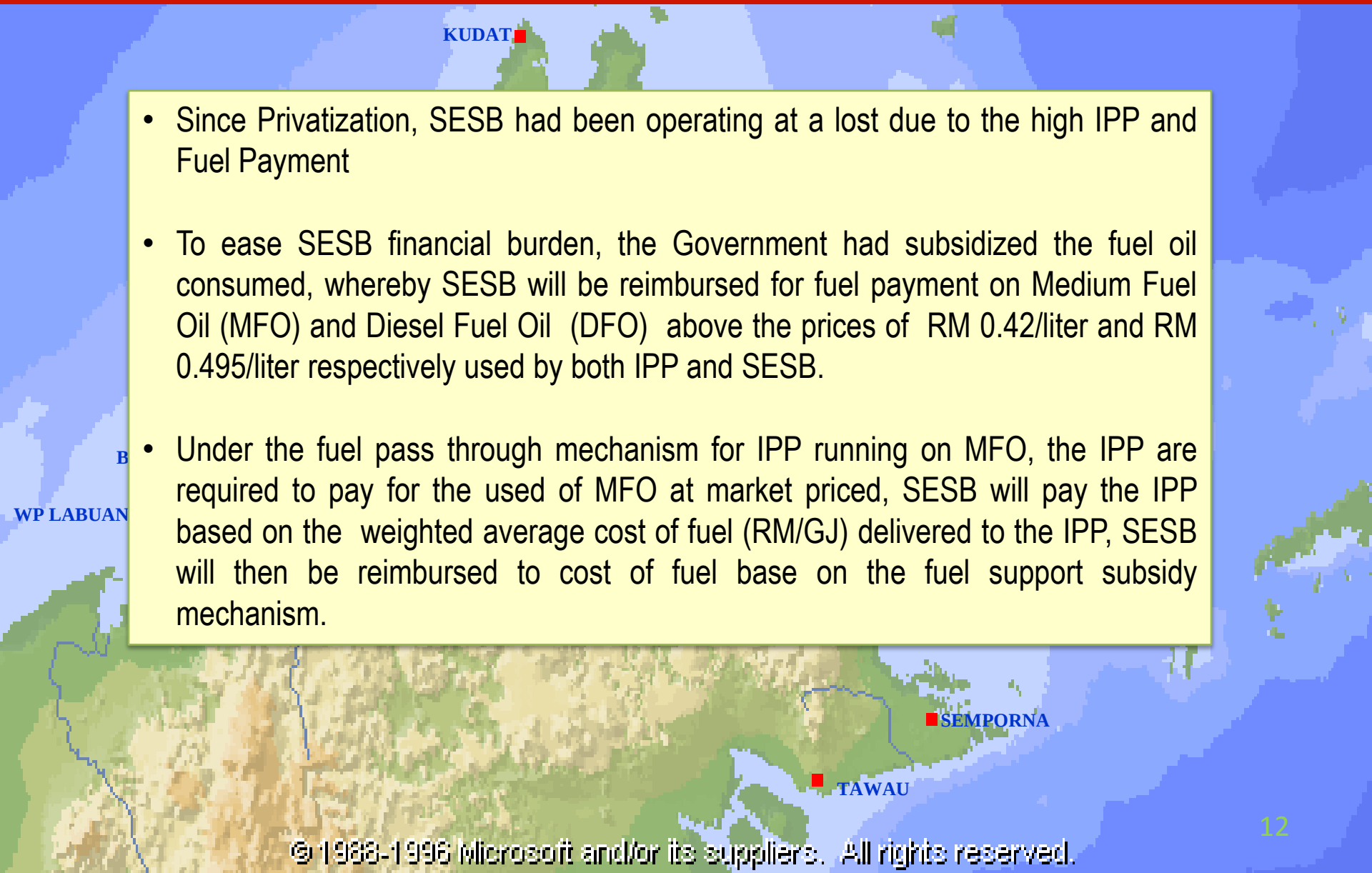


Tariff Comparison – SESB vs Others

Sabah tariff is among the lowest despite its higher cost structure (higher fuel costs, large area, lower consumer density).



Operating Subsidy

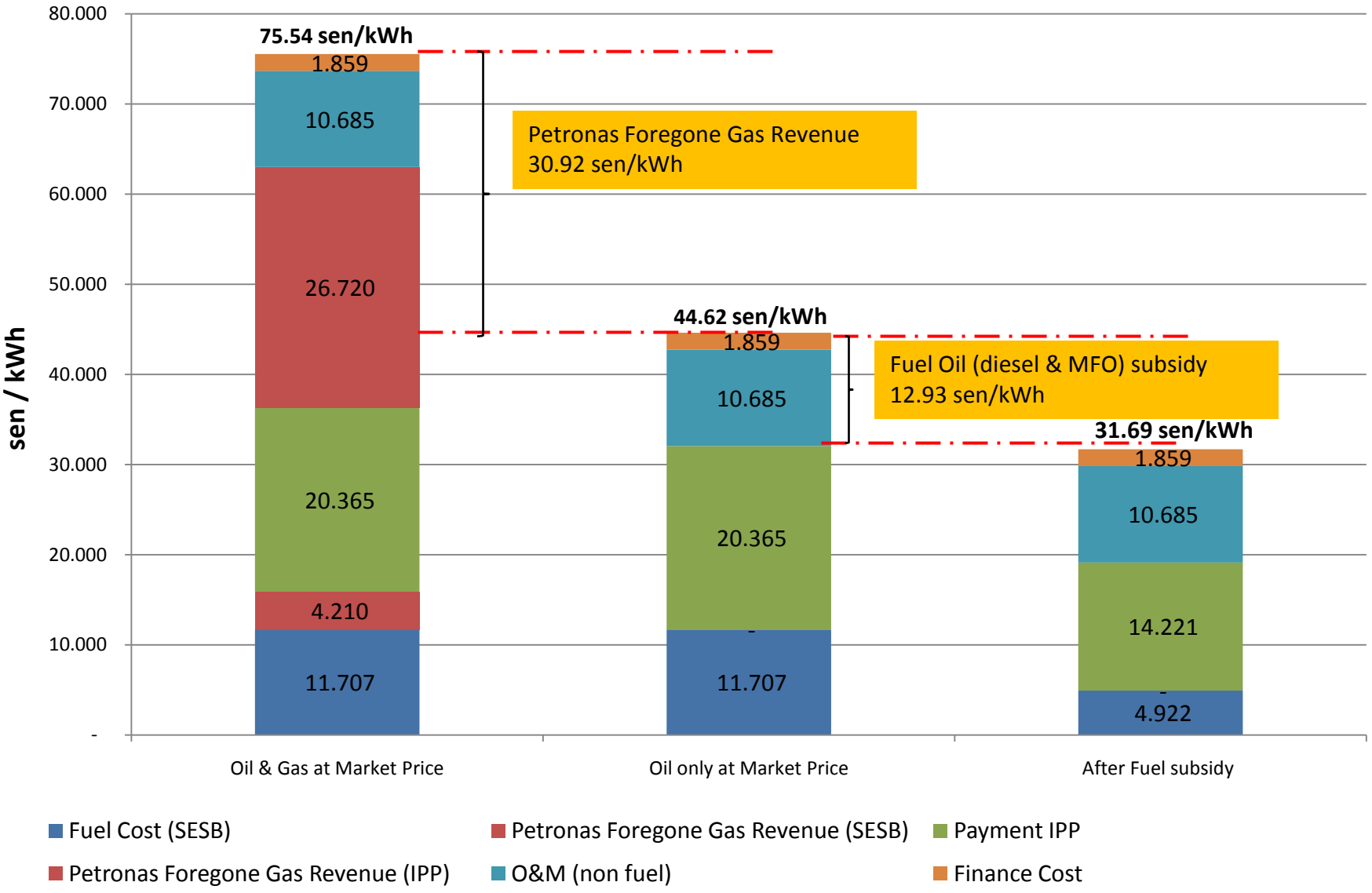


- Since Privatization, SESB had been operating at a lost due to the high IPP and Fuel Payment

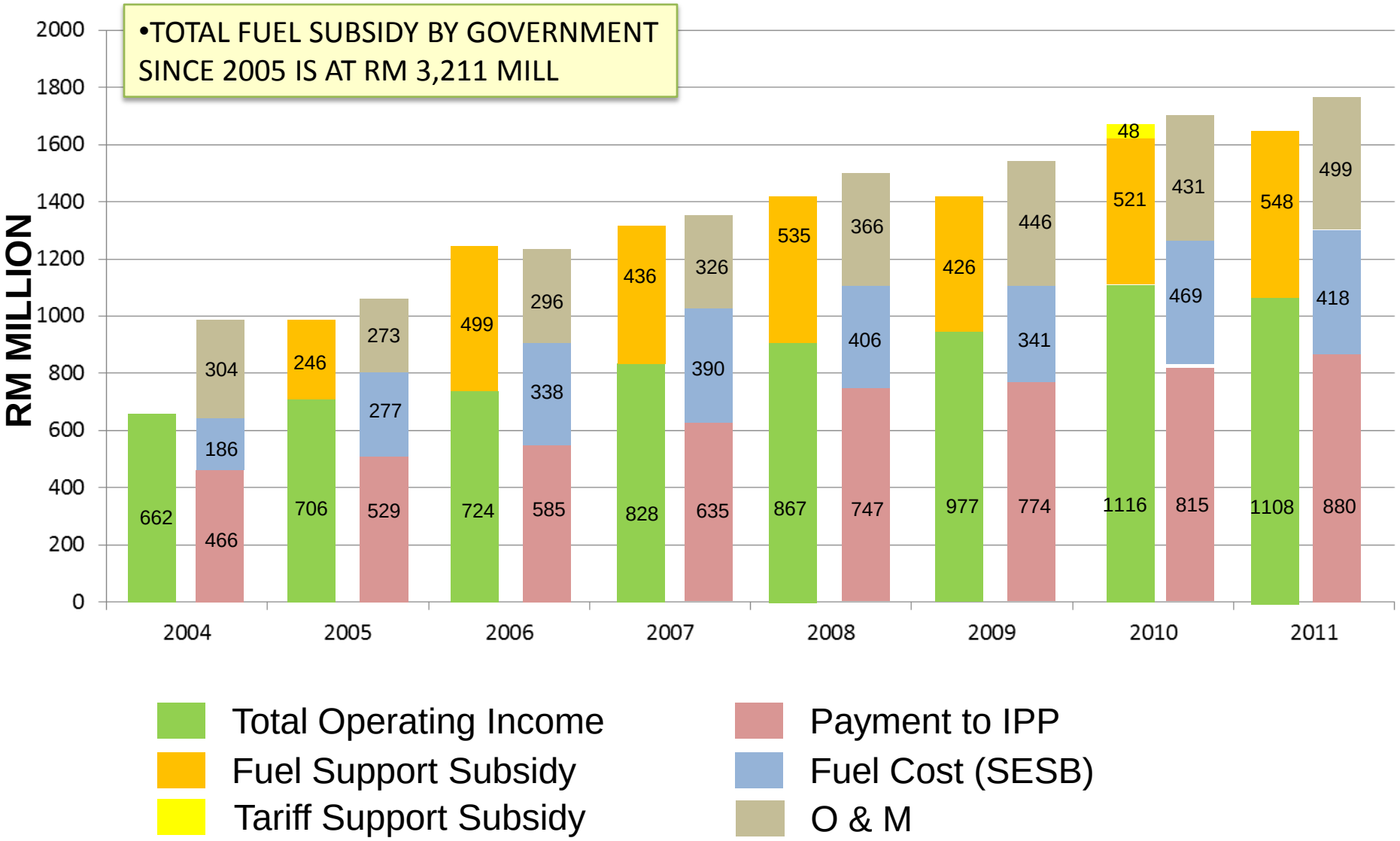
- To ease SESB financial burden, the Government had subsidized the fuel oil consumed, whereby SESB will be reimbursed for fuel payment on Medium Fuel Oil (MFO) and Diesel Fuel Oil (DFO) above the prices of RM 0.42/liter and RM 0.495/liter respectively used by both IPP and SESB.

- Under the fuel pass through mechanism for IPP running on MFO, the IPP are required to pay for the used of MFO at market priced, SESB will pay the IPP based on the weighted average cost of fuel (RM/GJ) delivered to the IPP, SESB will then be reimbursed to cost of fuel base on the fuel support subsidy mechanism.

SESB COST OF SUPPLY BY COST COMPONENT FY2010



Actual Financial Status 2004 - 2011



FINANCIAL PROJECTIONS WITH TARIFF INCREASE

NEVERTHELESS GOV SUBSIDY STILL REQUIRED (FUEL SUBSIDY AND TSS)

SUMMARY INCOME STATEMENT

FINANCIAL YEAR	2012	2013	2014	2015	2016	2017	2018	2019	2020
	RM Million								
REVENUE									
Sale of Electricity	1,383	1,492	1,796	1,923	2,053	2,405	2,554	2,706	3,146
Transfer from consumer contribution	46	43	41	39	38	34	30	26	23
Goods and Services	33	33	30	27	29	29	29	30	29
Total Revenue	**1,462**	**1,569**	**1,866**	**1,990**	**2,120**	**2,469**	**2,613**	**2,762**	**3,197**
OPERATING COST									
Fuel Cost (SESB)	743	1,033	863	45	9	14	11	16	22
Payment to IPP	860	885	997	2,019	2,149	2,144	2,356	2,380	2,352
O & M	458	504	547	594	673	669	734	803	836
Total Operating Costs	**2,061**	**2,422**	**2,406**	**2,659**	**2,832**	**2,827**	**3,101**	**3,199**	**3,210**
Operating Profit/(Loss)	**(598)**	**(853)**	**(540)**	**(669)**	**(711)**	**(359)**	**(488)**	**(437)**	**(13)**
Fuel subsidy (diesel & MFO)	641	870	729	33	-	-	-	-	-
Tariff Support Subsidy	111	160	15	860	972	658	820	808	403
Transfer from Govt development grant	43	40	38	35	33	32	30	29	27
Other Operating Income	16	17	17	17	17	17	17	18	18
Interest on Loan	(70)	(91)	(118)	(127)	(161)	(187)	(229)	(263)	(297)
Net Profit/(Loss) before tax	**143**	**143**	**141**	**150**	**150**	**161**	**151**	**155**	**139**
RORB	**5%**	**5%**	**5%**	**5%**	**5%**	**5%**	**5%**	**5%**	**5%**

	Assumption:	
1	20% Capex funded by Government Soft loan	
2	Gas at subsidized price (RM/mmBTU)	6.40
3	LNG Price (2015 to 2020) (RM/mmBTU)	47.47
4	Tariff Increase in 2014 12%, 2017 10% and 2020 10%	
5	LNG plant using KPSB tariff	

LNG at market price

FINANCIAL PROJECTIONS WITH TARIFF INCREASE

NEVERTHELESS GOV SUBSIDY STILL REQUIRED (FUEL SUBSIDY AND TSS)

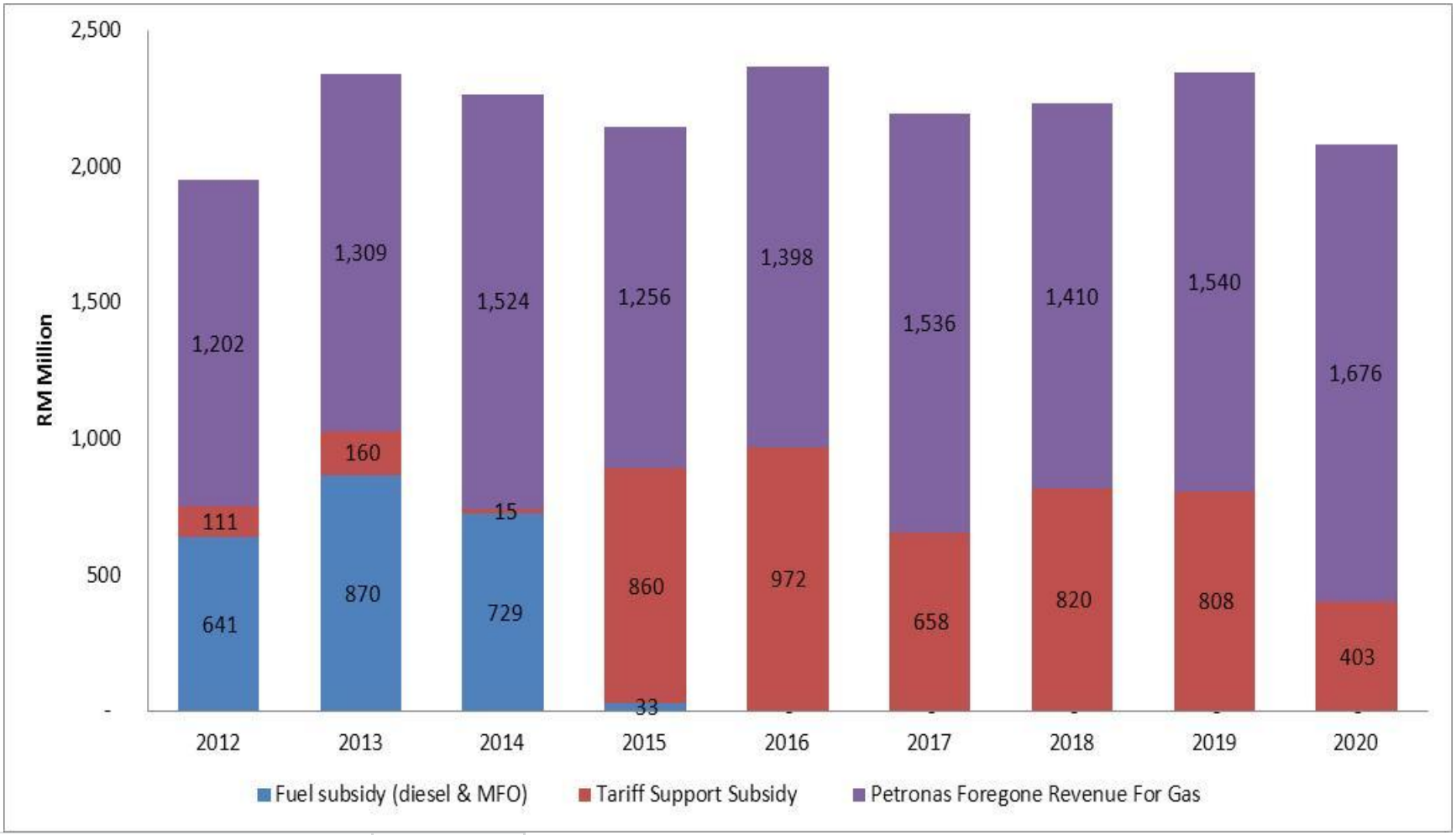
SUMMARY INCOME STATEMENT

FINANCIAL YEAR	2012	2013	2014	2015	2016	2017	2018	2019	2020
	RM Million								
REVENUE									
Sale of Electricity	1,383	1,492	1,796	1,923	2,053	2,405	2,554	2,706	3,146
Transfer from consumer contribution	46	43	41	39	38	34	30	26	23
Goods and Services	33	33	30	27	29	29	29	30	29
Total Revenue	**1,462**	**1,569**	**1,866**	**1,990**	**2,120**	**2,469**	**2,613**	**2,762**	**3,197**
OPERATING COST									
Fuel Cost (SESB)	743	1,033	863	45	9	14	11	16	22
Payment to IPP	860	885	997	1,308	1,441	1,431	1,648	1,668	1,643
O & M	458	504	547	594	673	669	734	803	836
Total Operating Costs	**2,061**	**2,422**	**2,406**	**1,947**	**2,123**	**2,115**	**2,393**	**2,486**	**2,501**
Operating Profit/(Loss)	**(598)**	**(853)**	**(540)**	**43**	**(2)**	**354**	**220**	**276**	**696**
Fuel subsidy (diesel & MFO)	641	870	729	33	-	-	-	-	-
Tariff Support Subsidy	111	160	15	148	262	-	111	94	-
Transfer from Govt development grant	43	40	38	35	33	32	30	29	27
Other Operating Income	16	17	17	17	17	17	17	18	18
Interest on Loan	(70)	(91)	(118)	(126)	(160)	(184)	(224)	(258)	(285)
Net Profit/(Loss) before tax	**143**	**143**	**141**	**150**	**151**	**219**	**154**	**158**	**456**
RORB	**5%**	**5%**	**5%**	**5%**	**5%**	**5%**	**5%**	**5%**	**5%**

	Assumption:	
1	20% Capex funded by Government Soft loan	
2	Gas at subsidized price (RM/mmBTU)	6.40
3	LNG Price (2015 to 2020) (RM/mmBTU)	6.40
4	Tariff Increase in 2014 12%, 2017 10% and 2020 10%	
5	LNG plant using KPSB tariff	

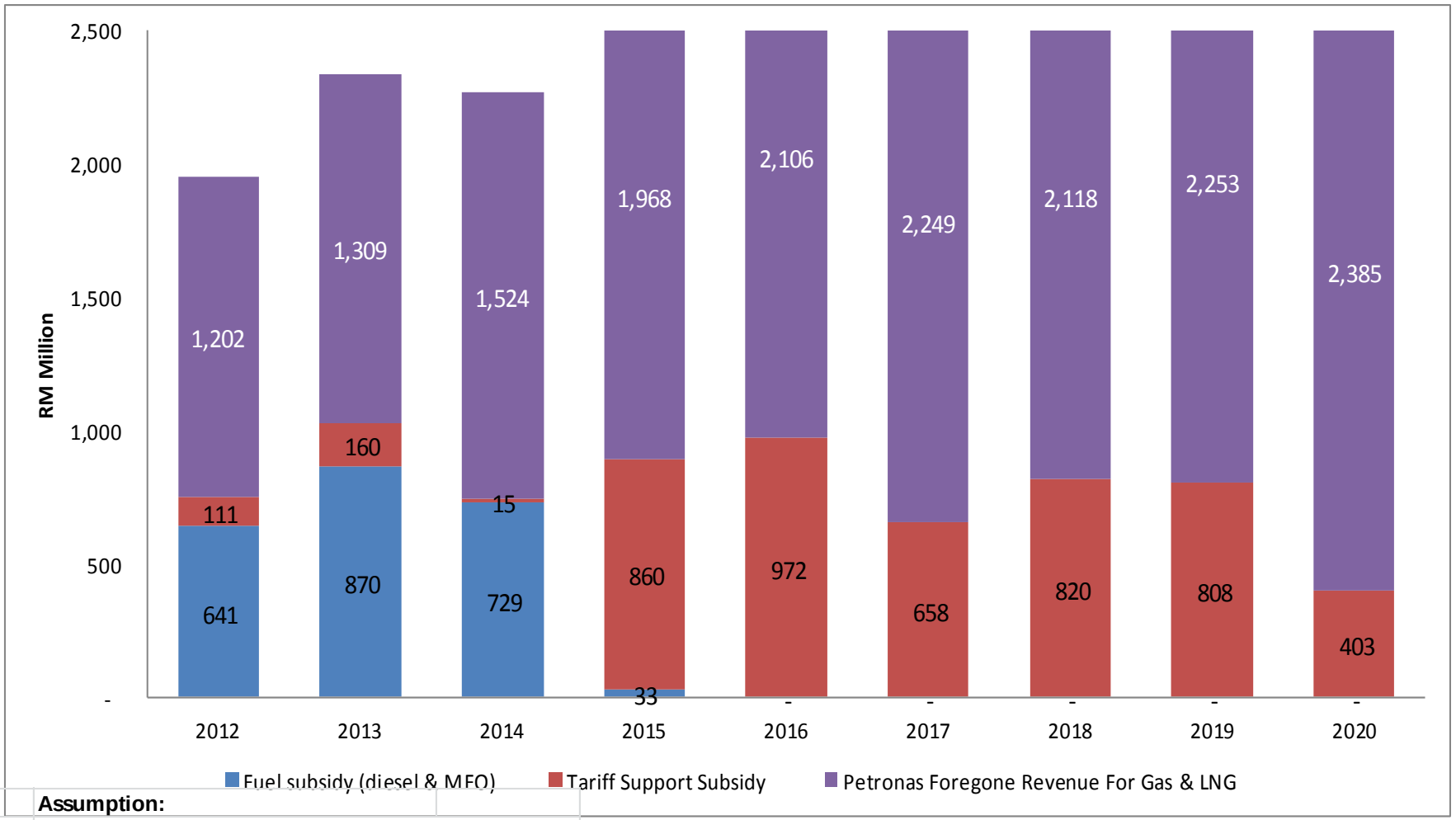
LNG subsidized at RM6.40 per mmBTU

GOVERNMENT SUBSIDIES & FOREGONE REVENUE FOR GAS – LNG at market price



	Assumption:	
1	20% Capex funded by Government Soft loan	
2	Gas at subsidized price (RM/mmBTU)	6.40
3	LNG Price (2015 to 2020) (RM/mmBTU)	47.47
4	Tariff Increase in 2014 12%, 2017 10% and 2020 10%	
5	LNG plant using KPSB tariff	

GOVERNMENT SUBSIDIES & FOREGONE REVENUE FOR GAS – LNG at RM6.40/mmBTU



	Assumption:	
1	20% Capex funded by Government Soft loan	
2	Gas at subsidized price (RM/mmBTU)	6.40
3	LNG Price (2015 to 2020) (RM/mmBTU)	6.40
4	Tariff Increase in 2014 12%, 2017 10% and 2020 10%	
5	LNG plant using KPSB tariff	

Issues and Challenges in Meeting the Electricity Demand

SESB baiki menara rosak

KOTA KINABALU: Sabah Electricity Sdn Bhd (SESB) akan memulakan kerja-kerja pembaikan pada menara 90 di jalan Tambunan yang merupakan talian penghantaran 275kV

'Penduduk harus

SESB diminta bekal janak

dahului kepe

an alam

SESB alami kerugian dianggar RM4.1j setahun akibat penyambungan haram

OLEH KAMARUDDIN LIUSIN
(kamaruddin@newsabah-times.com.my)

KOTA KINABALU: Sabah Electricity Sdn Bhd (SESB) mengalami kerugian dianggarkan RM4.1 juta setahun akibat aktiviti penyambungan bekalan elektrik secara haram seluruh negeri.

Pengarah Urusan SESB, Datuk Ir. Baharin Din berkata, sebulan SESB dianggarkan kerugian RM344,000 yang membabitkan 86 kawasan setinggan di seluruh negeri.

Ini katanya, dengan anggaran setiap sebuah kawasan setinggan mempunyai antara 200 hingga 300 rumah.

"Bukan sahaja SESB yang menang-

TUNJUKAN... Pengurus Besar (Pembahagian) Ir. Ahmad Fuad Kassim menunjukkan alat-alat yang digunakan untuk penyambungan haram bekalan elektrik, turut disaksikan Baharin.

challenge for

KOTA KINABALU: Sabah Electricity Sdn Bhd (SESB)

said

cluding an

sonnel, were

u during a joint

peration by SESB and the Malaysian Anti-Corruption Commission (MACC)

Low power tariff impede energy efficiency in Sabah

By CASEY LEE
casey@newsabahtimes.com.my

KOTA KINABALU: Sabah's low electricity tariff is a barrier to the federal government's efforts to promote energy efficiency in the state, Deputy secretary-general (Energy) of the Ministry of Energy, Green Technology and Water, Look Took Gee, said that the ministry has been aggressively encouraging energy efficiency in line with the Prime Minister's pledge to reduce carbon emissions by 15 percent in 2005 at Copenhagen and to prevent the country from becoming a net importer of power by 2015.

Look said that the electricity tariff in Sabah has been unchanged for the past 24 years while the tariff in West Malaysia has already been adjusted.

"I am not suggesting (a tariff increase) but what I'm trying to say is we have been having so many campaigns to tell the people to embark on energy efficiency and conserve energy. But if the tariff is so low, it doesn't really drive the people to save energy," she said.

"In the peninsula, we have already adjusted the tariff and we have told the rakyat, you must do this for the good of your next generation," she told reporters after opening the Green Engineering and Technology (GET) 2010 workshop yesterday.

She added that Sabah needed to address the issue of tariff as it was not sustainable in light of

Deputy secretary-general (Energy) Look Took Gee

will understand this predicament of the government. We cannot run away from this reality," she said.

Meanwhile, Look said that the ministry was banning the use of incandescent lights and that

namely, Teluk Salut, SBPC and Rugading leading to the loss of generating capacity of 200MW.

"To manage this situation and safeguard the system, SESB had to activate an emergency Under Frequency Loadshedding," she said in a statement.

The blackout affected consumers in Kota Kinabalu City, Tanjung Lipat, Sepanggar, Karamunsing, Inanam, Penampang, Alam

Mesra, UMS, Tuaran, Belud, Kudat, Lahad Datu, Sandakan, Tawau, Tenom, Keningau and Beaufort.

Wan Maria said the problem at Petronas Sabah Gas was fixed at 10.08pm on Friday with supply restored in stages from 9.40pm onwards and fully restored by around 10.25pm.

"We apologize for any inconvenience caused to our customers arising from this incident," she added.

OTHER OPERATIONAL ISSUES & CHALLENGES

- 2nd tiered (CRF) IPP with financial problem & deteriorating performance
- Too much dependency on natural gas (pipeline supplied)
  - DSM & Load Sheeding if gas curtailment happened
  - gas estimated to dominate 74% of Sabah Generation Mix in FY2015
- Prohibition in implementing 5 fuel-policy & Limited Future Generation Resources
  - Rejection of Coal Fired Power Plant in Sabah
  - Limited gas allocation to Energy Sector
  - Limited hydro resources
- Escalation of fossil fuel generation cost
  - Retraction of fuel subsidy
  - high IPP tariff
  - high alternative fuel cost i.e LNG
- Funding challenge for hydro projects
  - higher CAPEX however minimal operation cost
  - Stringent International financing requirement
- Reliability issue of RE plants (mini hydro, biomass)

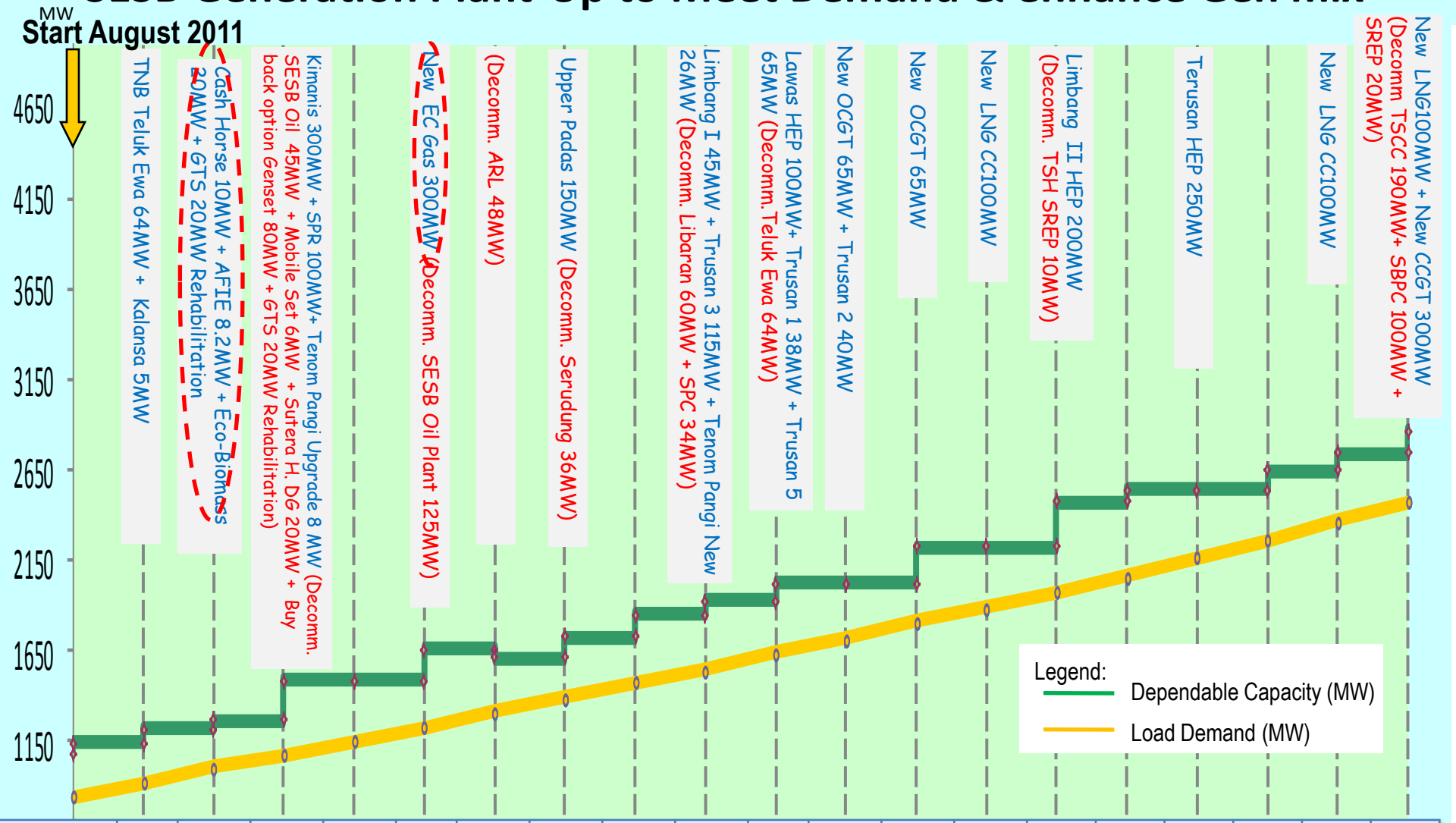
SABAH ELECTRICITY SDN. BHD. (462872-W)

WAY FORWARD

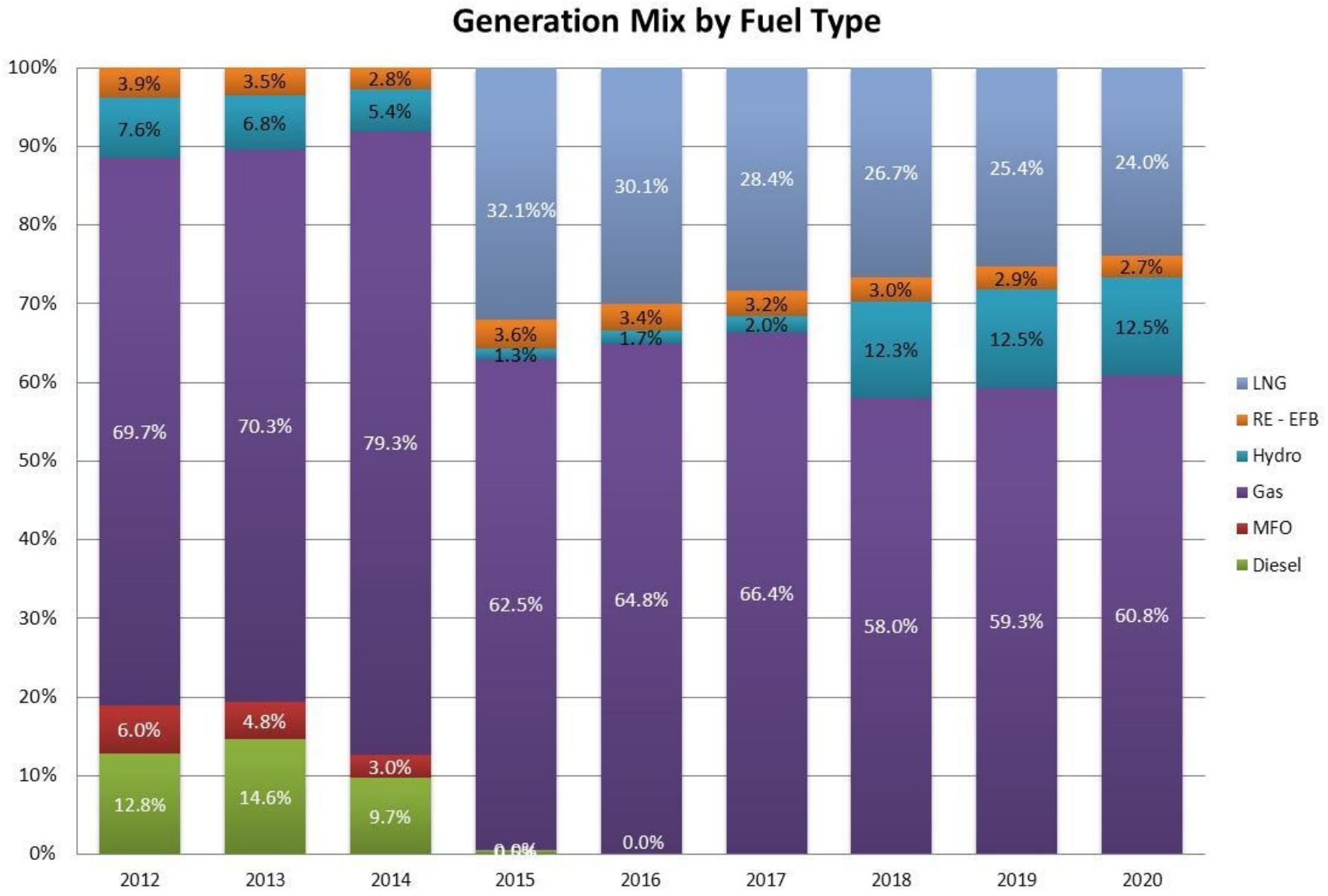
SABAH ELECTRICITY SDN. BHD. (462872-W)

FUTURE DEVELOPMENT

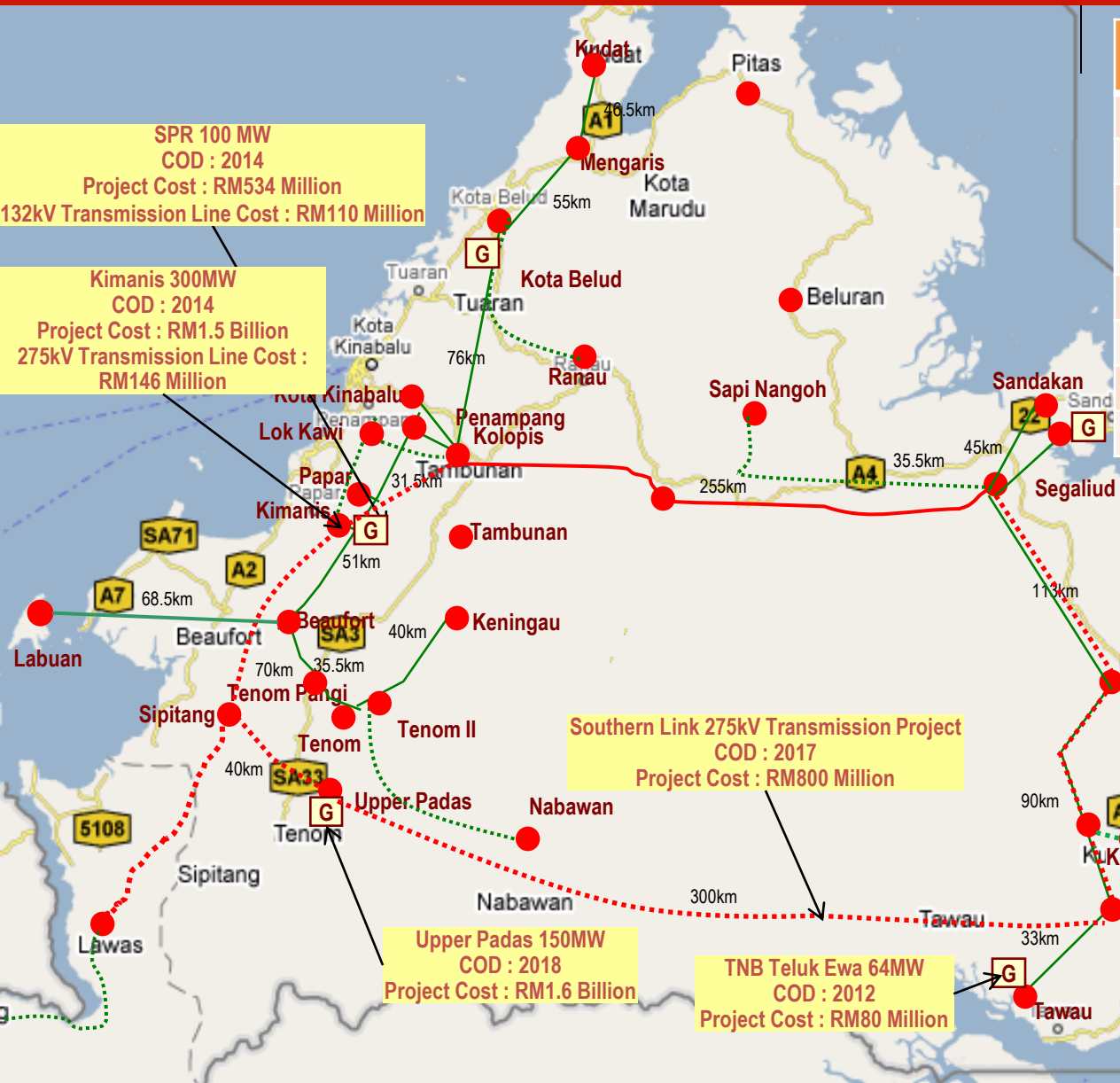
SESB Generation Plant-Up to Meet Demand & enhance Gen mix



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Load Forecast (MW)	918	1,001	1,074	1,152	1,223	1,312	1,387	1,476	1,546	1,634	1,714	1,808	1,887	1,978	2,059	2,162	2,257	2,369	2,474
Dependable Capacity (MW)	1,207	1,266	1,504	1,504	1,680	1,633	1,747	1,747	1,841	1,980	2,085	2,150	2,250	2,440	2,440	2,690	2,690	2,790	2,880
R. Margin (%)	31%	26%	40%	31%	37%	24%	26%	18%	19%	21%	22%	19%	19%	23%	19%	24%	19%	18%	16%
LOLE (days/year)	0.745	1.504	0.099	0.427	0.055	0.489	0.204	0.891	1.409	0.770	0.748	1.248	1.121	0.168	0.726	0.037	0.237	0.336	0.456

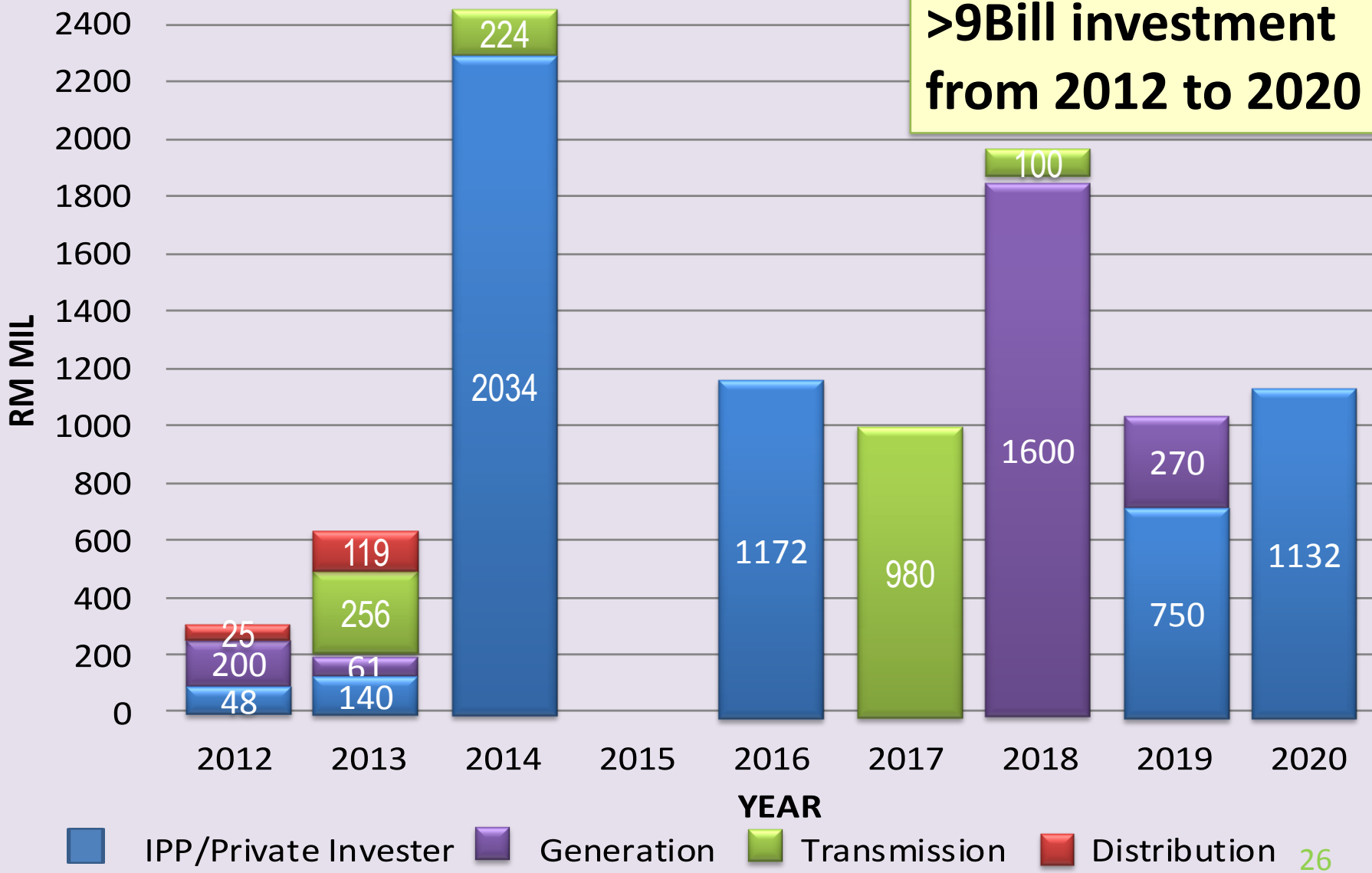

Generation Mix by Fuel Type
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2012
2013
2014
2015
2016
2017
2018
2019
2020
3.9%
7.6%
69.7%
6.0%
12.8%
3.5%
6.8%
70.3%
4.8%
14.6%
2.8%
5.4%
79.3%
3.0%
9.7%
32.1%%
3.6%
1.3%
62.5%
30.1%
3.4%
1.7%
64.8%
0.0%
28.4%
3.2%
2.0%
66.4%
26.7%
3.0%
12.3%
58.0%
25.4%
2.9%
12.5%
59.3%
24.0%
2.7%
12.5%
60.8%
LNG
RE - EFB
Hydro
Gas
MFO
Diesel

Generation & Transmission Planning Up to 2019



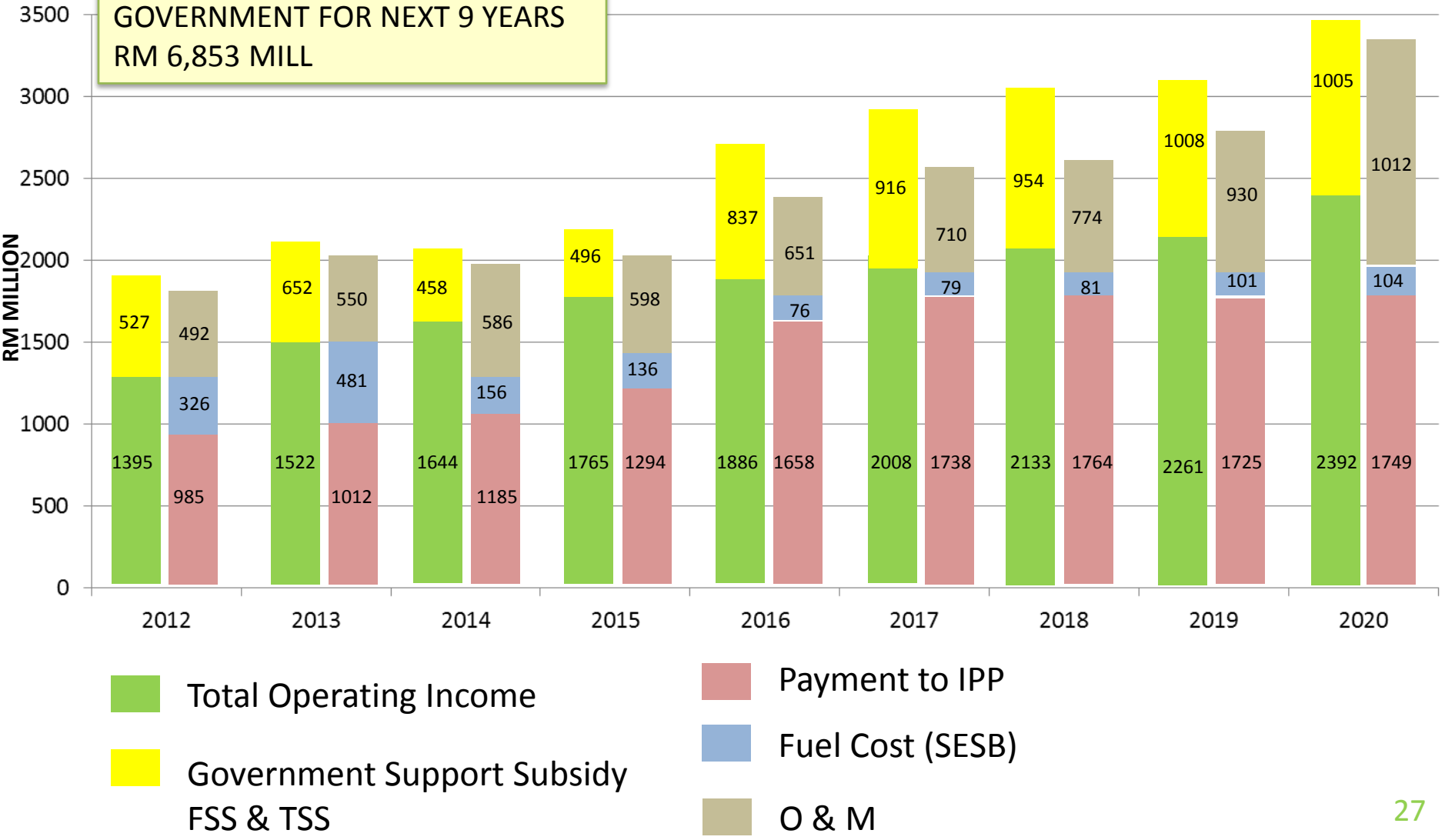
Year	Load Forecast (MW)	Cumulative Capacity (MW)	Reserve Margin (%)
2012	918	1207	31
2013	1001	1266	26
2014	1074	1504	40
2015	1152	1504	31
2016	1223	1680	37
2017	1312	1633	24
2018	1387	1747	26
2019	1476	1747	18

Generation, Transmission & Distribution Projects



Projected Financial Status 2012 - 2020

•FUTURE SUBSIDY NEEDED FROM GOVERNMENT FOR NEXT 9 YEARS RM 6,853 MILL



SABAH ELECTRICITY SDN. BHD. (462872-W)

RENEWABLE ENERGY DEVELOPMENT

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

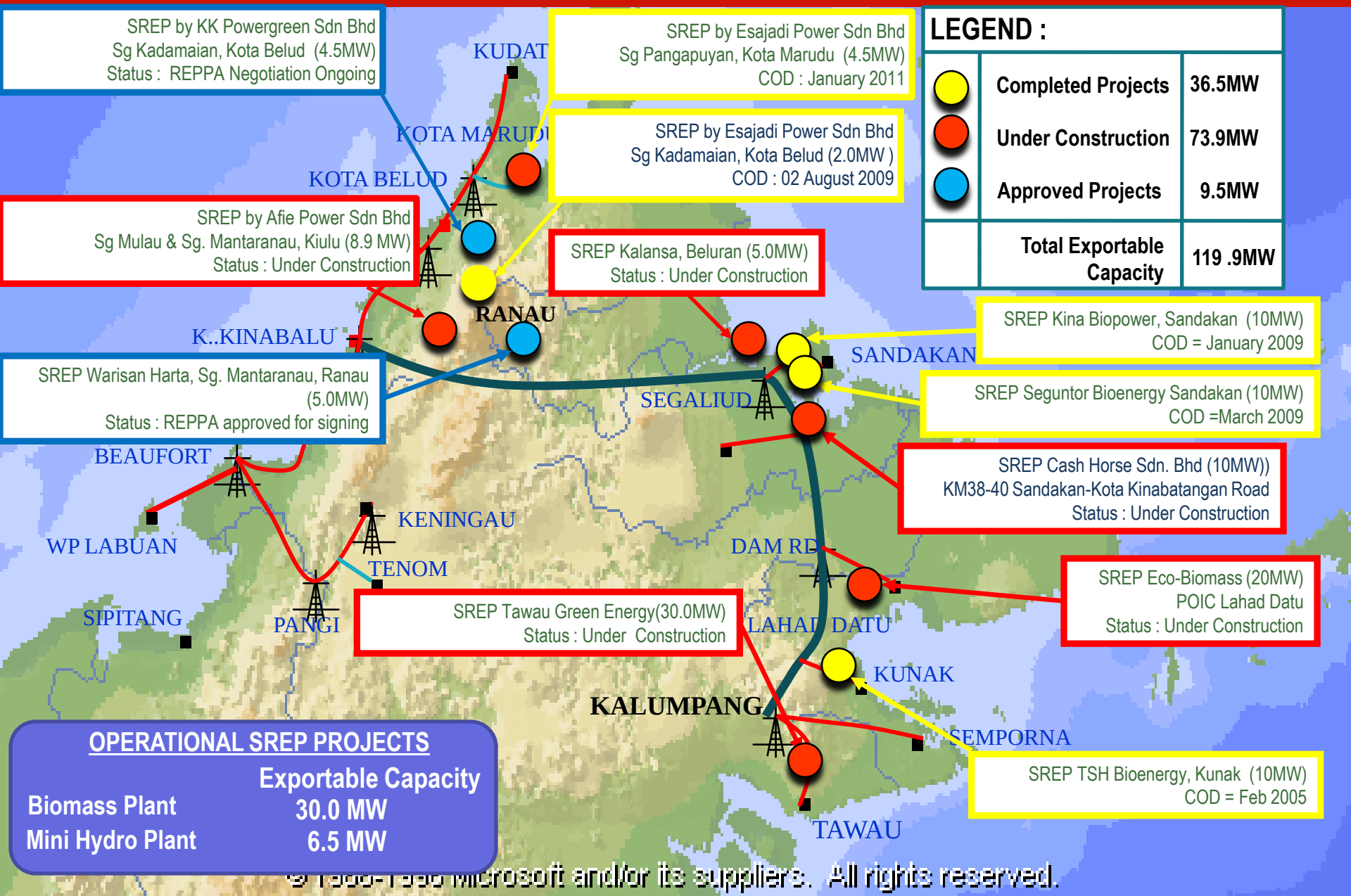
- Connected to the utility grid (as of 2010): **61.2 MW (17.5%** from 9th MP target) – **32MW** in **Sabah**
- Off-grid**:** >430 MW (private palm oil millers and solar hybrid)

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
  - ***Geothermal?***

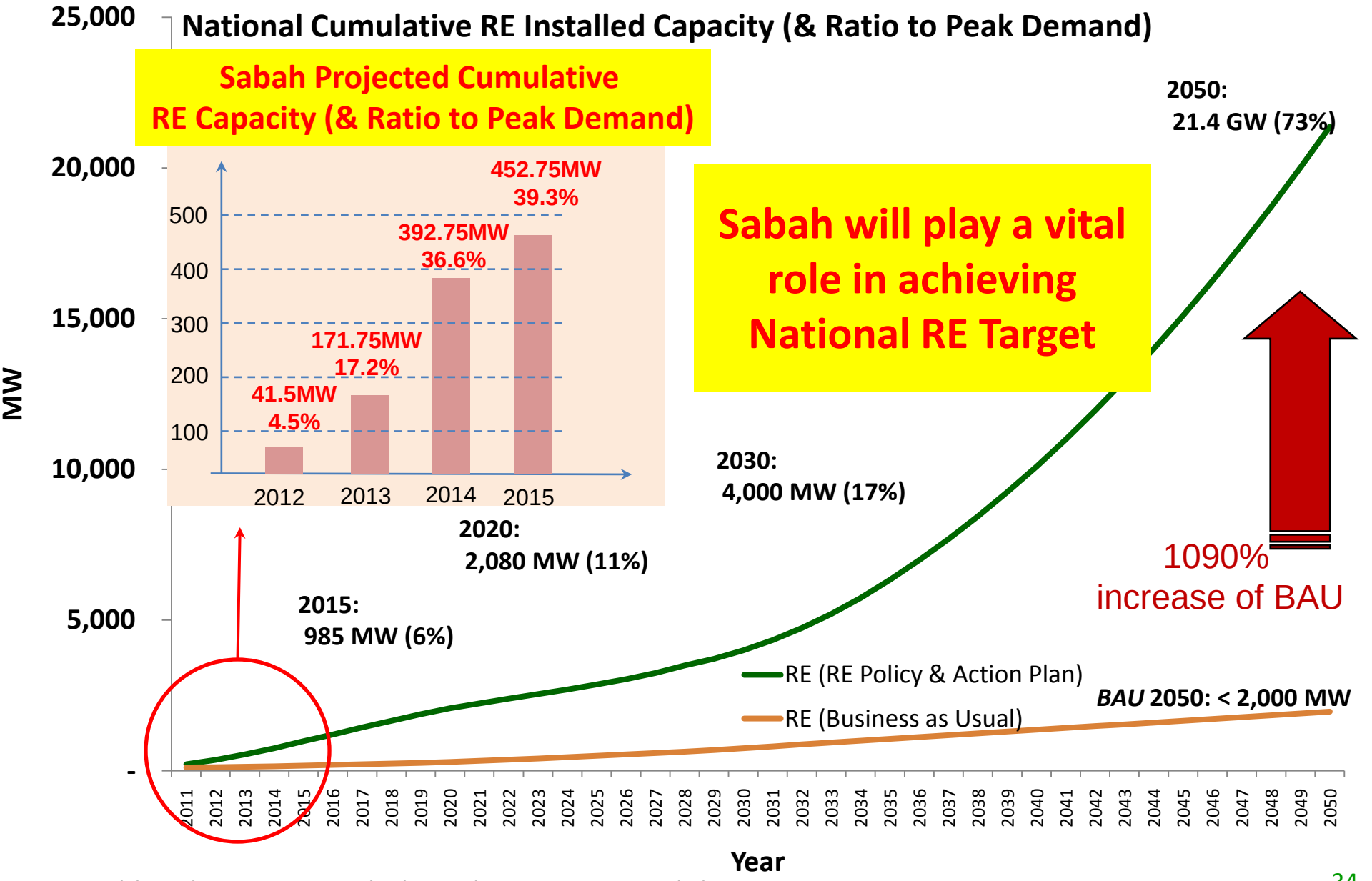
FEED-IN TARIFF (FIT) – ISSUES & CHALLENGES

- **Financial Aspect**
  - Sufficiency of RE fund for payment
  - Commitment of payment for whole concession from SEDA (ie ~RM300 Mill)
  - Other sources of fund (ie state gov contribution)
  - Quantum of contribution from customer in Sabah (only RM10Mill per annum)
  - Cash flow issue of SESB (ie timely reimbursement from SEDA)
- **Administration & Management**
  - Priority of FiT quota to the existing/REPPA signed RE
  - New REPPA / Migration of existing REPPA
  - Land Acquisition i.e. ROW
  - Public Awareness
- **Technical Aspect**
  - Power System Study
  - Protection Coordination Study
  - RE critical contribution in Sabah Generation Capacity
  - Metering & Billing
  - Reliability of RE plant

RE DEVELOPMENT POTENTIAL UNDER FiT IN SABAH

No	Type of RE	No. Of Proposal	Proposed Capacity (MW)	Potential COD
1	Biomass	13	211.5++	2014
2	Biogas	1	2	2013
3	Solar	12	90.05	2013
4	Municipal Waste	1	TBA	TBA
5	Hydro	3	30++	2015
GRAND TOTAL		20	333.55++	

RE Policy & Action Plan: Targets

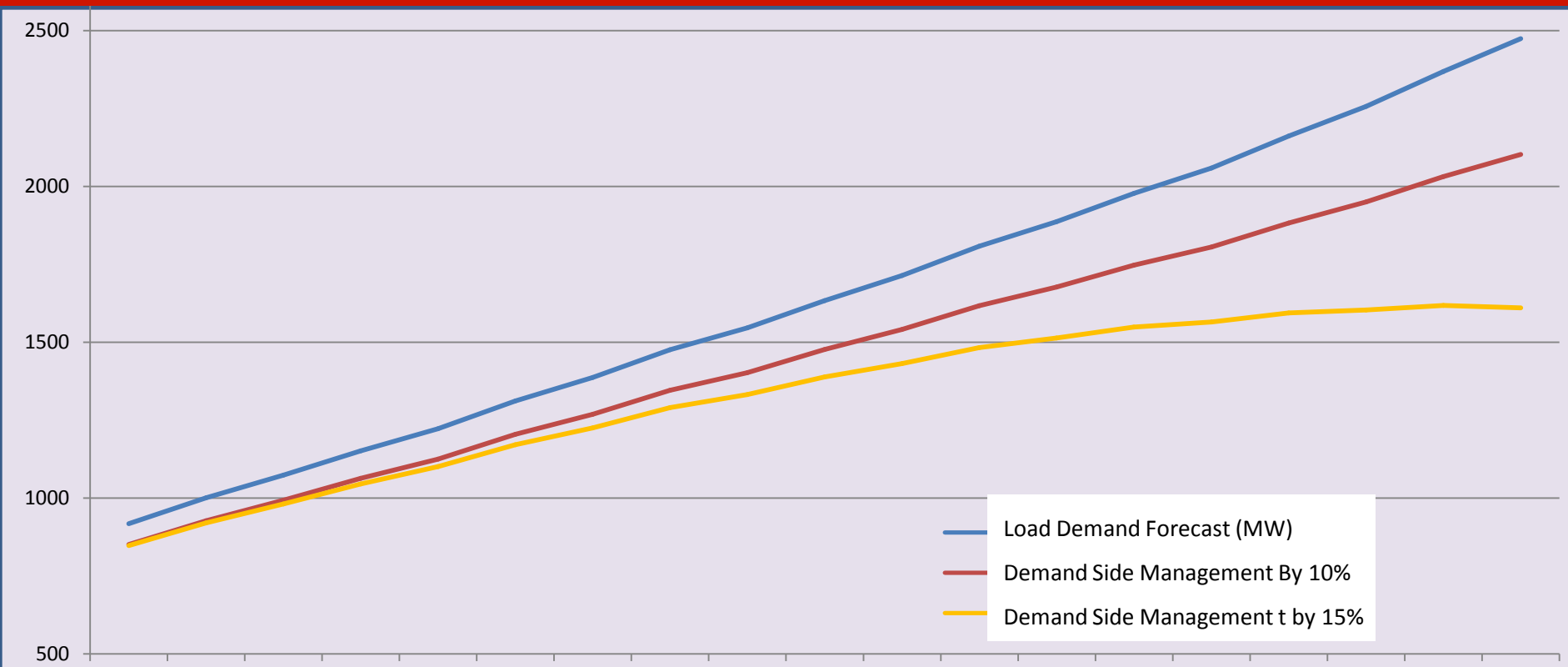


Source: Ministry of Energy, Green Technology and Water, Energy Commission

SABAH ELECTRICITY SDN. BHD. (462872-W)

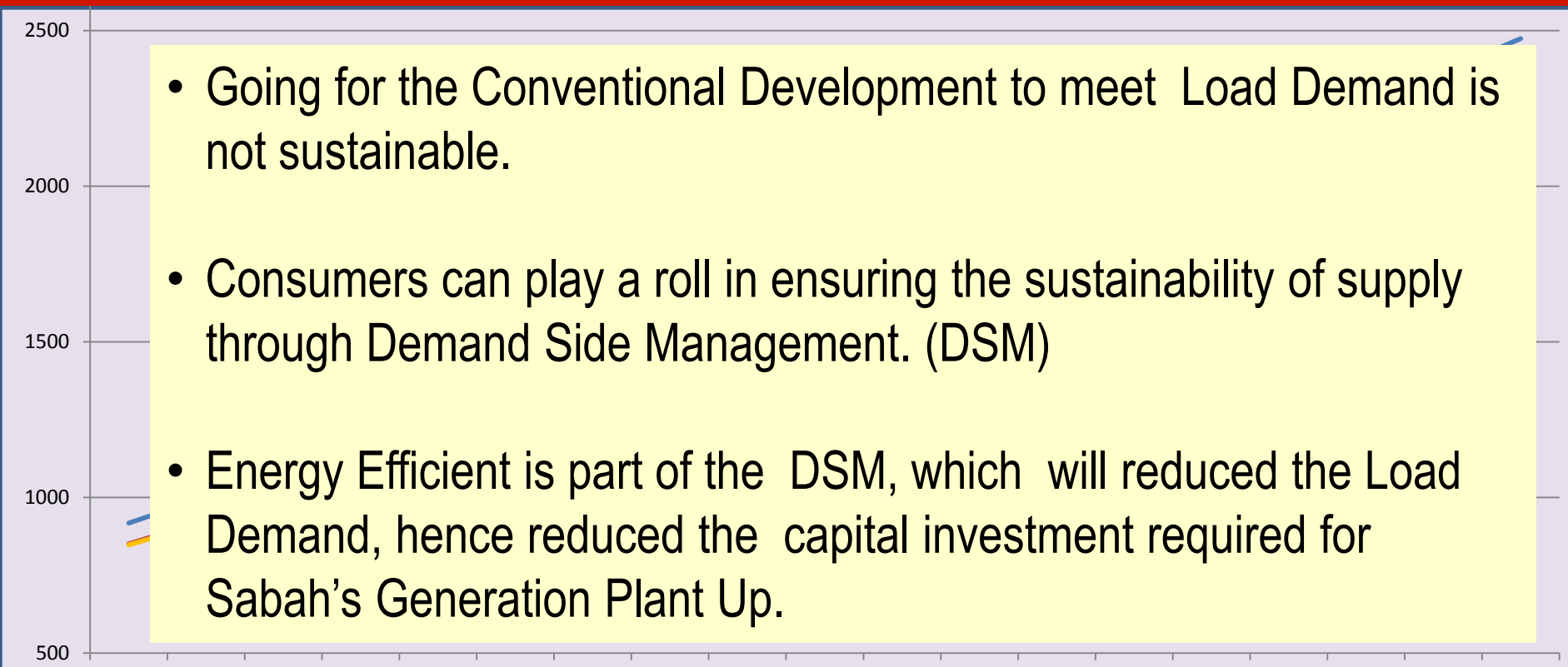
DEMAND SIDE MANAGEMENT

Planning Way Forward -Lowering Load Forecast with Scenario DSM/EE



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Load Forecast (MW)	918	1,001	1,074	1,152	1,223	1,312	1,387	1,476	1,546	1,634	1,714	1,808	1,887	1,978	2,059	2,162	2,257	2,369	2,474
Reduce Load Forecast 10% reduce (MW)	851	928	993	1063	1125	1205	1269	1346	1403	1477	1541	1618	1678	1748	1806	1883	1950	2032	2103
Reduce Load Forecast 15% reduce (MW)	848	921	982	1046	1101	1172	1226	1290	1333	1389	1432	1483	1514	1549	1565	1594	1604	1618	1610

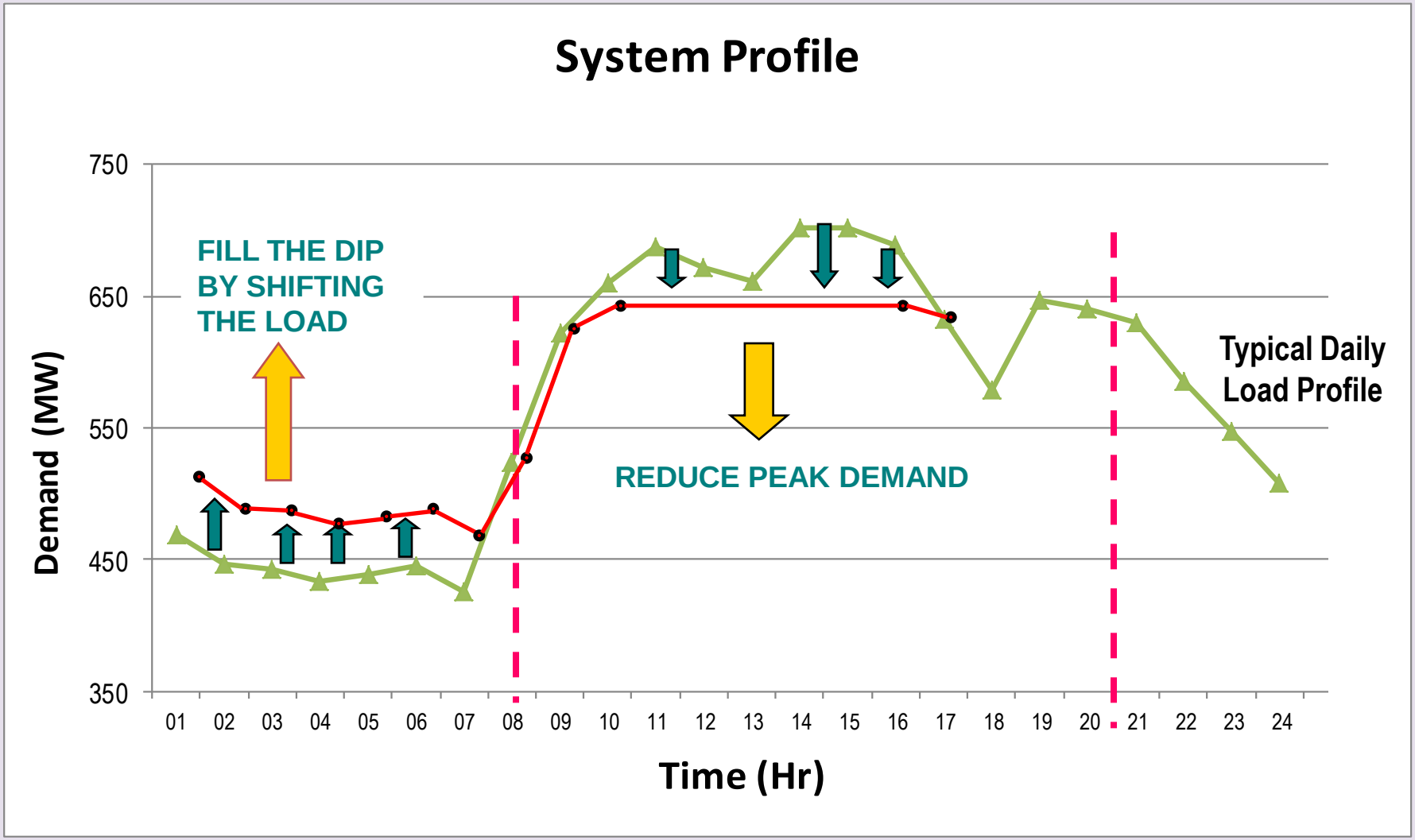
Planning Way Forward -Lowering Load Forecast with Scenario DSM/EE



- Going for the Conventional Development to meet Load Demand is not sustainable.
- Consumers can play a roll in ensuring the sustainability of supply through Demand Side Management. (DSM)
- Energy Efficient is part of the DSM, which will reduced the Load Demand, hence reduced the capital investment required for Sabah's Generation Plant Up.

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Load Forecast (MW)	918	1,001	1,074	1,152	1,223	1,312	1,387	1,476	1,546	1,634	1,714	1,808	1,887	1,978	2,059	2,162	2,257	2,369	2,474
Reduce Load Forecast 10% reduce (MW)	851	928	993	1063	1125	1205	1269	1346	1403	1477	1541	1618	1678	1748	1806	1883	1950	2032	2103
Reduce Load Forecast 15% reduce (MW)	848	921	982	1046	1101	1172	1226	1290	1333	1389	1432	1483	1514	1549	1565	1594	1604	1618	1610

Planning Way Forward -Lowering Load Forecast with Scenario DSM/EE



Promote Demand Side Management with Load Shifting (Peak / Off Peak)

SABAH ELECTRICITY SDN. BHD. (462872-W)

ENERGY EFFICIENCY PROGRAMMES IN SABAH

Energy Efficiency Program in Sabah

- Sabah Energy Efficiency Comm. (comprising of industrial players, local authorities and other stakeholders)
- EE program with participation from stakeholders
- Demo project - gov building & private building (via AAIBE fund)
- Future Outlook - National Energy Efficiency Master Plan (NEEMP)

  Based on NKEA/EPP 9: Energy Efficiency, promotion of energy efficiency via 5 key initiatives:

  - ✓ Leadership by example
  - ✓ Promotion of EE appliances
  - ✓ Cogeneration
  - ✓ Building insulation
  - ✓ Transport efficiency

SABAH ELECTRICITY SDN. BHD. (462872-W)

CONCLUSION

Conclusion

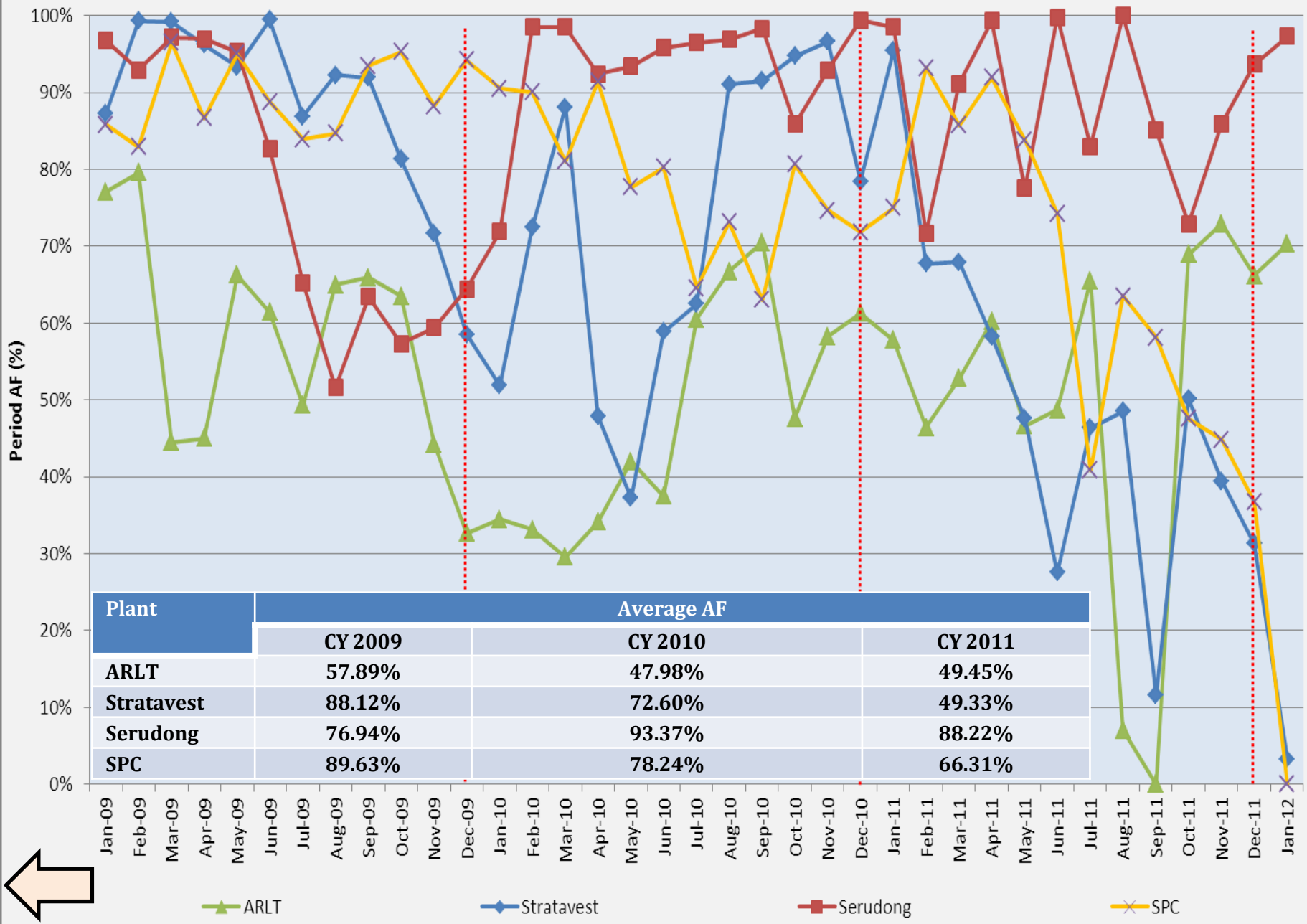
- For sustainable development and operation, electricity tariff rationalisation + gov fuel subsidy must continue
- Renewable energy development leveraging Sabah abundant resources (FIT and hydro potentials)
- Demand side management via energy efficiency

SABAH ELECTRICITY SDN. BHD. (462872-W)

THANK YOU

PRACTICE ENERGY EFFICIENCY, AN ACT OF RESPONSIBLE CONSUMERISM

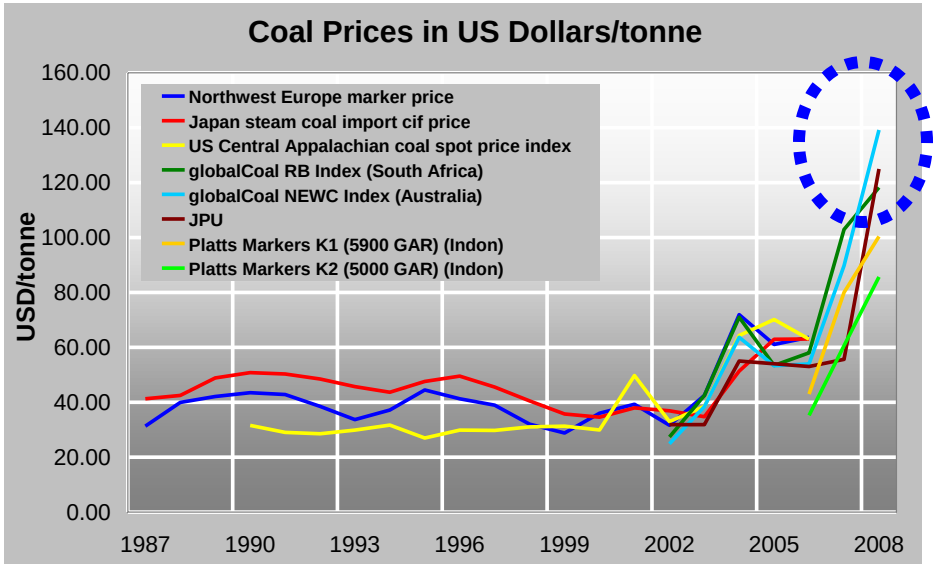
AF (%) PERFORMANCE OF OIL IPP (JAN 2009 - JAN 2012)



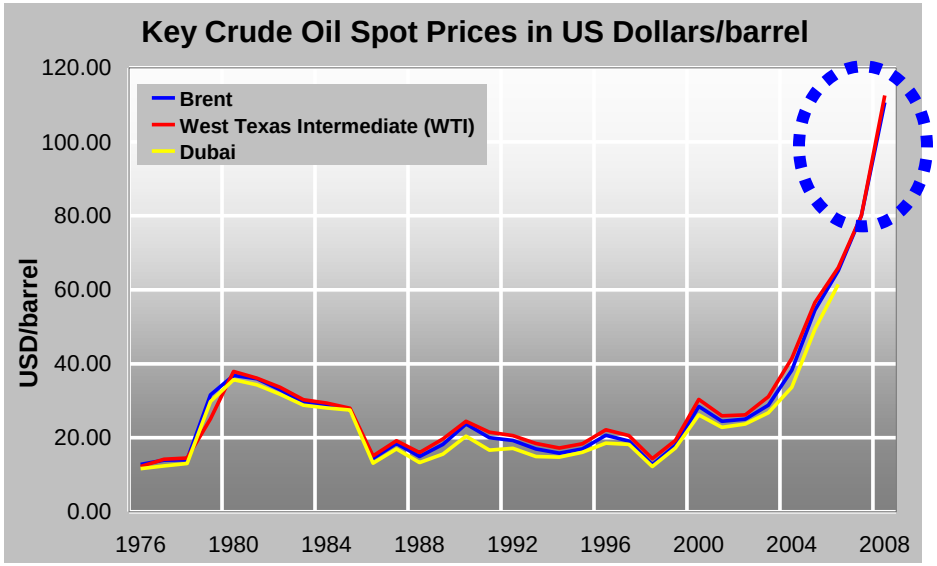
Plant	Average AF		
	CY 2009	CY 2010	CY 2011
ARLT	57.89%	47.98%	49.45%
Stratavest	88.12%	72.60%	49.33%
Serudong	76.94%	93.37%	88.22%
SPC	89.63%	78.24%	66.31%

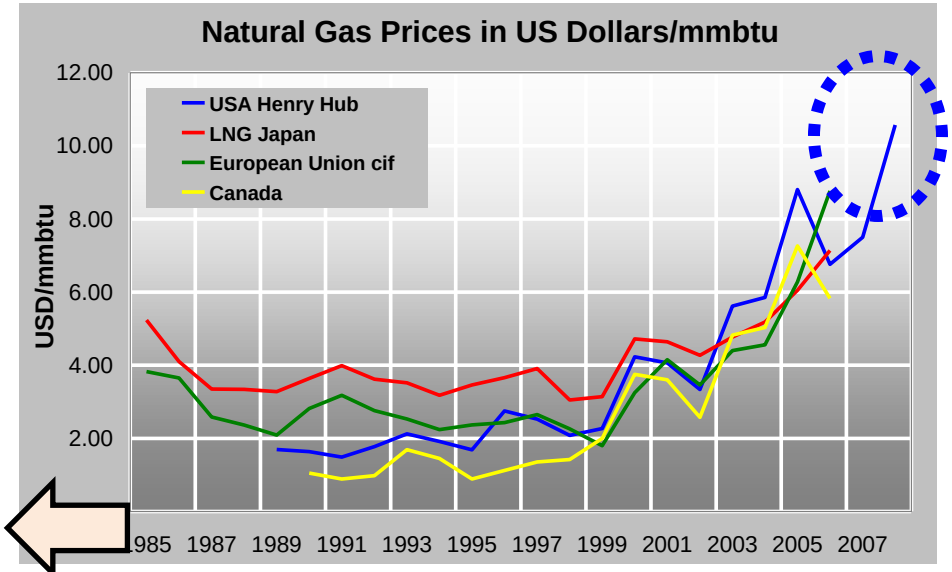
ISSUES AND CHALLENGES

Fuel price volatility



"Oil prices hit record peaks above 126 dollars" *AFP, May 2008*

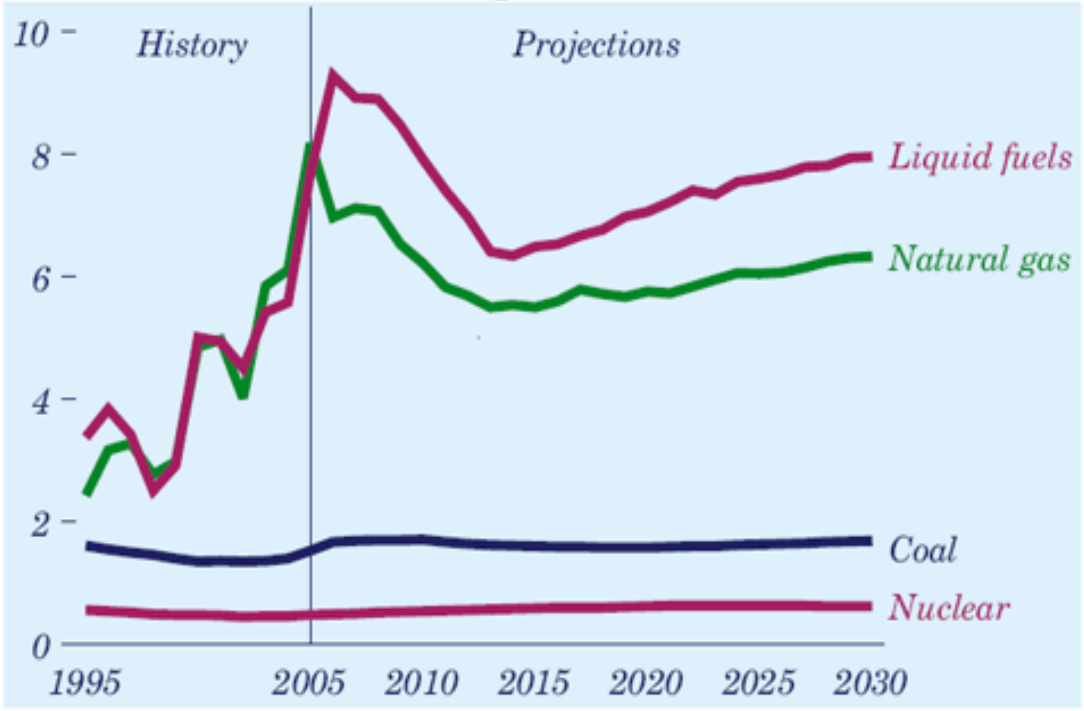




Source: BP Statistical Review of World Energy 2007, International Energy Agency, Platts Report & TNB Fuel

Trend & Outlook
Fuel Price Historical & Projections in the US

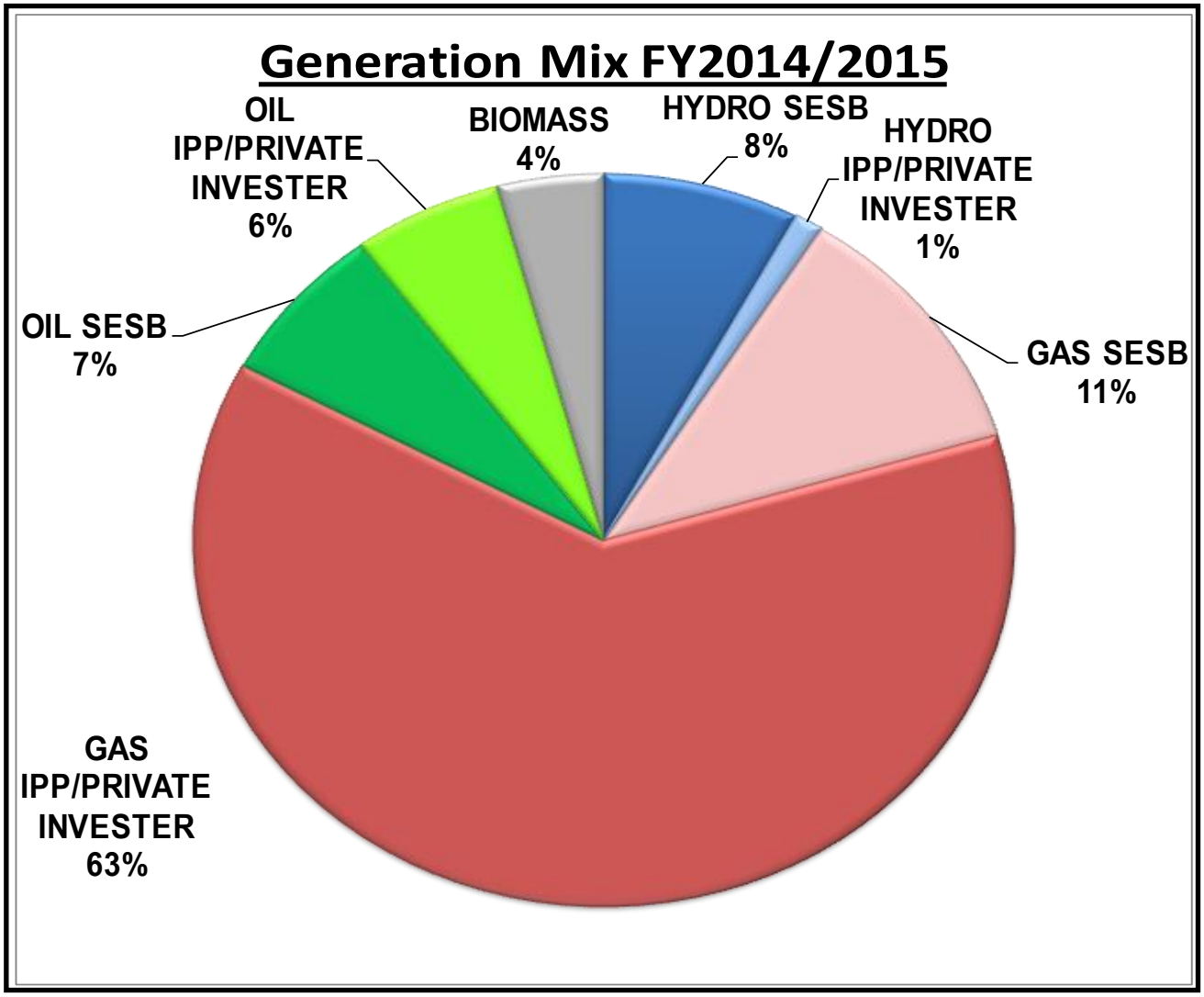
Figure 65. Fuel prices to electricity generators, 1995-2030 (2005 dollars per million Btu)



Source: EIA – US Energy Price

- EIA fuel cost projections indicated that coal and nuclear is going to be stable and low in the long run
- Coal in the US is stable mainly due to domestic production and high reserve
- Nuclear fuel is still expected to be low and stable despite import of uranium
- Situation is expected to be the same for Malaysia except for coal price

DEPENDANCY ON NATURAL GAS (PIPELINE SUPPLIED)



NATIONAL ENERGY POLICIES AND DEVELOPMENT PLAN

Energy Policies

Four Fuel Policy (1981) → **Five Fuel Policy (2001)** → **National Green Technology Policy (2009)**

- To pursue balance utilisation of oil, gas, hydro and coal
- RE as the fifth fuel in energy supply mix
- Green Tech. as the driver to accelerate the national economy and promote sustainable

MUSA: NO COAL POWER PLANT

The PM understands that while we need to build up our power supply, it cannot be done at the expense of the people's welfare and environment

By KAMARUDDIN LIUSIN
kamaruddin@newsabahtimes.com.my

KOTA KINABALU: The proposed coal-fired power plant in Lahad Datu will not be built.

Instead the state and federal governments have agreed to pursue alternative energy sources such as gas and liquefied natural gas (LNG) to meet the power needs in Sabah.

The decision was made at the recent National Economic Advisory Council (NEAC) chaired by the Prime Minister Datuk Seri Najib Tun Razak himself.

Chief Minister Datuk Seri Musa Haji Aman in disclosing this yesterday after chairing the State Cabinet meeting here said: "We know there have been objections to the proposed coal powered plant and today it is proven that all the objections have not fallen on deaf ears."

Musa who is also Finance Minister said the Barisan Nasional government under the able leadership of Prime Minister Datuk Seri Najib Tun Razak is a government that listens to the people and has the political will not to bring coal to Sabah.

"Our approach towards development will be balanced and sustainable," he stressed.

And he also extended his gratitude on behalf of the state and people to the Prime Minister for not only being attentive to Sabah's power needs but also for his grave concern about the environment.

"The Prime Minister understands that while we need to build up our power supply in Sabah it cannot be done at the expense of the people's welfare and the environment.

"And, he also understands that one of Sabah's great assets is its pristine environment. While Sabah needs increase power supply to meet the increasing development, the state cannot afford to put its natural environment at risk.

"As a responsible government, it is paramount that we protect our environment for the wellbeing of the people. We must also protect the environment especially since it is one of the biggest attractions in Sabah," Musa said.

Sabah's energy needs be met to ensure equitable development throughout the state including the east coast where there is a shortage of power.

Musa (right) speaking to reporters yesterday.

Cadangan loji tenaga arang batu LD dibatal

Kerajaan bangun sumber tenag

Loji aran

Oleh JOHN TAMBANAN
johntambanan@yahoo.com

KOTA KINABALU: Ketua Menteri, Datuk Seri Panglima Musa Haji Aman berkata kerajaan akan membangunkan sumber tenaga gas sebagai alternatif memenuhi keperluan bekalan tenaga di Sabah.

Beliau berkata cadangan bagi membina loji arang batu di negeri ini yang telah menimbulkan banyak bantahan daripada pelbagai pihak tidak akan diteruskan.

"Kerajaan tidak akan meneruskan pembinaan loji arang batu di negeri ini yang telah menimbulkan banyak bantahan daripada pelbagai pihak. Sebaliknya kita telah bersetuju membangunkan sumber tenaga alternatif, iaitu dengan menggunakan gas bagi memenuhi keperluan di Sabah," katanya pada sidang media selepas mempengerusikan Mesyuarat Kabinet di Wisma Innoprise di sini kelmarin.

Musa berkata keputusan muktamad itu dibuat oleh kerajaan negeri dan persekutuan selepas mengambil kira pandangan pelbagai pihak.

"Jadi bagi pihak kerajaan negeri dan rakyat Sabah, saya merakamkan penghargaan dan terima kasih kepada Perdana Menteri, Datuk Seri Najib Tun Razak yang bukan sahaja memberikan perhatian serius kepada bekalan tenaga di Sabah, malah berkepentingan tinggi terhadap alam sekitar," katanya.

Loji janakuasa arang batu yang boleh menghasilkan tenaga elektrik sehingga 300 megawatt itu pada mulanya dicadangkan di Silam, Lahad Datu pada awal 2008 tetapi ditolak kerajaan negeri selepas mendapat bantahan penduduk setempat dan badan bukan kerajaan (NGO).

Ia kemudian dipindahkan ke Sandakan, tetapi turut ditolak penduduk tempatan yang kemudian menggesa kerajaan supaya tampil dengan loji janakuasa menggunakan teknologi mesra alam.

Kemudiannya, cadangan membina loji janakuasa arang batu di Felda Sahabat disumumkan oleh Perdana Menteri ketika melawat Sabah, pada 13 September 2009.

Mesurut Musa, loji janakuasa gas tersebut dijangka dibina di Sandakan dalam tempoh tersebut.

"Perdana Menteri minta dilaksanakan secepat mungkin supaya rakyat Sabah tidak menghadapi masalah bekalan elektrik. Tegasnya ini, Perdana Menteri telah mengarahkan pihak [illegible] Nasional Berhad bersama Sabah Electricity Sdn. Bhd [illegible]," katanya.

[illegible] bukannya mudah itu [illegible] pendengar keluhan dan [illegible] itu juga menunjukkan [illegible] dungi dan memelihara [illegible] kesejahteraan rakyat.

"Perdana Menteri amat memahami bahawa sementara kita perlu meningkatkan keupayaan bekalan tenaga di Sabah, ia tidak boleh dilakukan dengan mengabaikan kesejahteraan rakyat dan kelestarian alam sekitar," katanya.

Barnard Yaang
KOTA KINABALU: Ketua Menteri Datuk Seri Musa Aman pada Rabu berkata, cadangan pembinaan loji tenaga arang batu yang banyak menceteuskan kontroversi di Sinakut, Tungku, Lahad Datu telah dibatalkan Kerajaan Persekutuan.

Katanya, Kerajaan Persekutuan dan negeri telah bersetuju mencari sumber tenaga alternatif lain sama ada gas atau Gas Cecair Asli (LNG) bagi memenuhi keperluan bekalan tenaga Sabah.

Beliau berkata, Kerajaan mencapai keputusan membatalkan loji tenaga arang batu yang dicadangkan itu semasa mesyuarat Majlis Bertindak Ekonomi Negara (NEAC) membatalkan cadangan pembinaan loji arang batu itu.

Menurut beliau, PM mengeluarkan arahan kepada Tenaga Nasional Berhad (TNB), Sabah Electricity Sdn Bhd (SESB) dan Petronas supaya berbincang sama ada hendak menggunakan LNG atau gas untuk menggerakkan loji tenaga itu.

Walaupun kos untuk mengeluarkan elektrik lebih [illegible]

"Hari ini membuktikan bahawa bantahan seperti itu diberi perhatian," beliau memberitahu wartawan selepas mempengerusikan mesyuarat pasca Kabinet di Wisma Innoprise.

Beliau berkata, lawatan Najib ke Lembangan Meliau bulan lepas juga penting dalam keputusan Kerajaan untuk membatalkan cadangan pembinaan loji arang batu itu.

Najib, katanya sanggup mendengar permintaan dan pandangan rakyat seperti yang terbukti dengan keputusan untuk membatalkan loji tenaga arang batu di Lahad Datu itu yang telah menimbulkan rasa tidak senang dalam kalangan pencinta alam sekitar.

Musa berkata, walaupun terdapat keperluan meningkatkan bekalan tenaga di Sabah untuk disalurkan dengan tahap pembangunan yang semakin pesat, negeri ini tidak mahu sehingga ia memberi risiko kepada alam sekitar.

"(Dengan itu) sebagai sebuah Kerajaan yang bertanggungjawab, adalah penting bagi kita untuk memberi keutamaan dalam melindungi alam sekitar kita untuk kesejahteraan rakyat.

Pembatalan projek arang batu gambaran suara rakyat didahulukan

Oleh RUZAINI ZULKIFLI
noscore2006@yahoo.com

KOTA KINABALU: Keputusan untuk membatalkan rancangan membina loji janakuasa arang batu di Sabah mencerminkan semangat gagasan 1Malaysia.

Menteri di Jabatan Perdana Menteri, Tan Sri Koh Tsu Khoon, berkata keputusan pembatalan oleh Perdana Menteri serta Ketua Menteri Sabah itu dilihat selaras dengan konsep lestari di bawah Model Ekonomi Baru (MEB).

Koh yang juga Presiden Parti Gerakan menyokong penuh keputusan membatalkan rancangan projek loji arang batu di Sandakan dan menggantikannya dengan projek mesra alam sekitar.

Tambahnya, Gerakan bersama parti komponen lain sentiasa menyokong usaha-usaha Barisan Nasional memelihara alam sekitar.

"Kita percaya rakyat di negeri ini serta semua parti komponen akan menyokong keputusan bernas daripada pemimpin-pemimpin mengenai pembatalan pembinaan loji arang batu tersebut.

"Malah ia sememangnya mencerminkan semangat rakyat didahulukan di bawah gagasan 1malaysia malah ia adalah selaras dengan konsep lestari di bawah model baru ekonomi iaitu teknologi mapan," ujarnya.

Koh berkata demikian dalam sidang media sempena majlis Rumah Terbuka Tahun Baru Cina dan Chap Goh Mei di Hotel Shangri-La di sini kelmarin.

Dalam pada itu, Ketua Menteri, Datuk Seri Panglima Musa Haji Aman, ketika berucap di majlis tersebut berkata penggunaan gas asli bagi penyaluran bekalan elektrik di pantai timur adalah mahal namun berbaloi.

Menurutnya, beliau telah mengarahkan Menteri Pembangunan Industri, Datuk Raymond Tan, untuk menilai semula usul penggunaan gas asli bagi menjana kuasa elektrik di pantai timur.

"Memang telah ada cadangan sebelum ini bahawa gas di Kimanis harus digunakan untuk menjana bekalan elektrik ke pantai timur.

"Janaan gas berkenaan adalah mahal berbanding arang batu namun dalam masa sama kita telah membelanjakan jutaan ringgit subsidi untuk memastikan kawasan pantai timur dibekalkan tenaga yang mencukupi.

"Jadi kita telah membincangkan mengenai pengwujudan kaedah ini dan satu kajian terperinci akan dijalankan. Tetapi sama ada ia adalah Gas Cecair Asli (Liquefied Natural Gas) atau tidak, Perdana Menteri menyarankan tidak ada loji arang batu di Sabah," ujarnya.

Jangan tolak terus arang batu

FORUM

SAYA merujuk kepada *"Selamatkan Sabah"* (Forum 23.1.11) yang mengutarakan pendapatnya dari perkspektif Barat sebagai mengulas surat David Lee.

Ia berbunyi seolah-olah satu dendam peribadi untuk menjatuhkan agenda David Lee. Bukankah Pilihan Tenaga yang memulakan pendebatan ini?

Sebagai seorang rakyat Sabah yang dibesarkan untuk berfikir dan bertindak secara rendah diri, saya terpaksa merasa beberapa pucuk surat mengenai topik ini kebelakangan ini satu pameran cauvinis, hampir-hampir seperti sebuah tarian burung merak untuk menentukan yang mana satu mempunyai bulu ekor lebih cantik dan panjang.

Bulu roma saya berdiri apabila mengetahui bahawa terdapat orang-orang di kalangan masyarakat kita yang begitu lantang dalam penulisan mereka sehingga mengisytiharkan perang pena. Tolong tanya anda sendiri – adakah anda membantu mempercepatkan pembangunan Negeri ini atau memperlahankannya?

Di penghujung surat anda, anda gagalpun untuk mengesyorkan sebarang penyelasaian terhadap keperluan tenaga Negeri kita. Jika anda tidak menghentam arang batu, tetapi tidak mahu arang batu di mana-mana yang berhampiran dengan rakyat kita, jadi apakah penyelasian yang anda boleh bagi kepada rakyat?

Dalam masa beberapa tahun, keperluan bekalan tenaga untuk Negeri kita akan bertambah. Samada anda suka atau tidak, pertambahan pendudukan dan perkembangan industri tidak boleh dielakkan dan Tenaga Boleh Diperbaharui (Renewable Energy), terutama Biomas merupakan sumber paling sesuai menandangkan Negeri kita dianugerahi dengan ribuan hektar ladang kelapa sawit.

Beberapa buah ladang ini dimiliki orang Sabah, kebanyakan berada di Pantai Timur Sabah dan beberapa sungai terbesar Negeri ini, termasuk Kinabatangan dan Segama, melintasinya dan berakhir di Lautan Sulu yang didakwa mempunyai sistem eko batu karang terkaya di dunia.

Namun, saya hairan kenapa kajian saintifik ini dibuat oleh saintis asing hanya beberapa bulan lalu.

Mengapakah kita gagal menangani masalah besar yang kita warisi ini walaupun setelah menimba pelajaran berpuluh-puluh tahun? Mengapakah para NGO tidak bergabung ketika itu untuk menangani masalah ini, tetapi cepat pula bersatu untuk satu isu yang lebih kecil? Sudahkah mereka berusaha untuk mempengaruhi orang ramai supaya tidak membuang sampah di sana sini?

Mahukah anda memungut sebarang sampah yang anda lihat semasa berjalan kaki di Kota Kinabalu atau mana-mana bandar di Sabah dan kemudian membuang sampah itu ke dalam tong sampah?

Saya menghormati kenyataan Dr Pang dari POIC pada 14 Januari yang menjanjikan bahawa POIC akan berusaha memajukan industri biomas di Sabah.

Tetapi dengan segala hormatnya marilah kita menjadi realistik dan tidak terlalu mengharapkan perkara itu berlaku.

Faktanya ialah biomas masih berada dalam peringkat permulaan dan masih banyak masalah atau halangan yang harus diatasi. Dan berdasarkan kadar kemajuan yang kita sedang alami, ianya mungkin akan memakan masa 10 tahun lagi sebelum perkara ini dihalusi.

Nadi pengusahan baru ini ialah Tandan Buah Kosong atau EFB sepertimana yang ia lebih dikenali. EFB perlu dipungut terlebih dahulu, dihantar ke loji tenaga dan diproses sebelum dibakar untuk memanaskan air untuk dijadikan stim yang kemudiannya menggerakkan turbin untuk menjana kuasa. Sayugia diingatkan bahawa pembakaran menyebabkan CO2 + abu + gas-gas, sama seperti Gas atau Diesel atau Arang Batu.

Tetapi memandangkan proses pemungutan dan penghantaran EFB memerlukan tenaga manusia yang ramai, masih terlalu awal untuk memperkatakan apa yang dapat dibawa oleh teknoloji hebat ini kepada rakyat. Ini mengambil kira fakta bahawa masih belum ada satu sukatan mengenai pengredan EFB, harganya, waran penghantaran dan elemen-elemen lain belum ditentukan.

Namun, saya mempunyai keyakinan terhadap biomas memandangkan saya telah banyak membaca tentang kejayaannya di merata dunia. Ia memang sesuai untuk masyarakat kecil dan kadangkala yang terpencil, membekalkan sumber tenaga yang tetap yang gagal disediakan oleh syarikat-syarikat utiliti, memandangkan bahan mentah bio boleh diperolehi secara terus dari berbagai sumber.

Tetapi persoalan (maka cabarannya) masih timbul – mampukah loji-loji biomas di Sabah membekalkan sumber tenaga yang boleh diharapkan (tanpa berhenti, 24 jam sehari dan 365 hari setahun)?

Benar-benarkah kita yakin bahawa biomas boleh dijadikan jangkar bagi tenaga di Pantai Timur dan mungkin juga di seluruh Sabah suatu hari? Sanggupkah ladang kelapa sawit seluas beribu-ribu hektar itu menjanjikan dan menghantar bekalan EFB yang mencukupi kepada loji-loji tenaga buat selama 10 tahun akan datang, mengambilkira keutamaan operasi mereka?

Dan juga memandangkan banyak masa rakyat telah terbazir semata-mata membaca surat-surat mengenai perkara ini kebelakangan ini, kita harus juga melupakan pilihan lain bagi RE seperti Solardan Photovoltaic (terlalu mahal dan memerlukan penyelenggaraan yang kerap), angin (tidak cukup kuat di Pantai Timur), Hidro (mungkin kebanyakan Pantai Timur akan dibanjiri memandangkan topografinya), dan Geothermal (terlalu sikit di Tawau untuk bilangan penduduk yang ramai).

Semua rakyat Sabah yang tulen akan mengetahui perkara ini jika mereka pernah ke Pantai Timur.

Tenaga diperlukan bukan sekadar untuk menyalakan api di rumah, tetapi juga untuk mengujudkan satu suasana bersesuaian yang membantu pembangunan melalui produktiviti, pertumbuhan dan kesejahteraan, samada ianya di rumah, kampung, kilang, kedai, pejabat, hospital, sekolah, lampu jalanraya dan banyak lagi.

Mengaitkan perkara ini kepada pengalaman peribadi, apabila keluarga saya mula berpindah ke Tambunan pada masa di mana kebanyakan kampung masih belum ada bekalan elektrik di awal 80an, maka hanya pada masa itulah baru saya sedar betapa penting bekalan elektrik kepada hidup saya dan betapa senang keluarga saya dibuatnya.

Bayangkan seorang kanak-kanak membaca buku di bawah lampu terang dibandingkan cahaya lilin. Saya boleh membayangkannya kerana saya pernah mengalaminya.

Walau bagaimanapun, soalan-soalan berikut masih perlu dijawab: Dengan keperluan untuk bekalan tenaga yang lebih banyak di masa depan, apakah hala tuju kita? Sudahkah kita pergi terlalu jauh dalam mempertikaikan kebolehan teknikal rakyat kita sehingga kita menidakkan masa depan cerah majoriti kita?

Oboi
Taman Penampang

RELIABILITY ISSUE OF RE PLANTS

Operational SREP Performance (FY2009 - FY2011)

Description	SREP TSH		SREP Kinabio		SREP Seguntor		SREP Kadamaian		SREP Pangapuyan	
Yearly Contractual Energy	64,000,000	Average AF based on Contractual Energy	82,344,000	Average AF based on Contractual Energy	82,344,000	Average AF based on Contractual Energy	14,366,400	Average AF based on Contractual Energy	30,353,400	Average AF based on Contractual Energy
FY2009	64,440,980	101%	19,155,430	23%	20,738,600	25%	0	0%	0	0%
FY2010	65,232,780	102%	45,134,970	55%	47,197,700	57%	8,532,616	59%	0	0%
FY2011	52,652,130	82%	57,015,680	69%	61,457,870	75%	12,349,657	86%	5,344,018	18%

Notes:-

(i) Lower value of energy/AF for Seguntor and Kinabio in FY2009 & Pangapuyan in FY2011 due to plant only COD in the middle of the FY

(ii) TSH achieve more than contractual energy in FY2010 & 2009