

# Current Status & Development Plan for Small Hydro Power in Malaysia

3<sup>rd</sup> to 5<sup>th</sup> April 2013  
Prestige Hotel, Hanoi

# Highlights of the presentation:

- Government initiatives in promoting Renewable Energy (RE)
  - The Policies / Acts / Regulations
  - Stakeholders involvement
  - Incentives
  - Government support
- Development of Mini Hydro
  - Current status
  - Future projects

# Government initiatives in promoting RE

- i. The Policies / Acts / Regulations
- ii. Stakeholders involvement
- iii. Incentives
- iv. Government support

# Development of Energy Policies in Malaysia

National Petroleum Policy (1975)

National Energy Policy (1979)

National Depletion Policy (1980)

4-Fuel Diversification Policy  
(1981)

5-Fuel Policy (2001)

# The Policies

## 3 Principles of The National Energy Policy:

\* Energy sector developments based on supply, utilization and the environment.

For supply - to promote other energy forms

For Utilization – to integrate EE programmes and develop DSM to curb consumption

For Energy & Environment are linked at every level, thus the requirement for mandatory assessment to address negative impacts.

## Malaysia National RE Policy

- Enhancing the utilisation of indigenous renewable energy resources to contribute towards national electricity supply security and sustainable socio-economic development
- To increase RE contribution in the national power generation mix;
- To facilitate the growth of the RE industry;
- To ensure reasonable RE generation costs;
- To conserve the environment for future generation; and
- To enhance awareness on the role and importance of RE.

# Strategic Thrusts of National RE Policy

**Strategic Thrust 2:**  
Provide Conducive  
Business Environment  
for RE

**Strategic Thrust 3:**  
Intensify Human  
Capital Development

**Strategic Thrust 1:**  
Introduce Legal and  
Regulatory  
Framework

**Strategic Thrust 5:**  
Create Public  
Awareness & RE Policy  
Advocacy Programmes

**Strategic Thrust 4:**  
Enhance RE Research  
and Development

# RE implementation mechanism

Small Committee  
on Renewable  
Energy

The selling price between  
RM0.17/kWh to RM 0.21/kWh

Feed in Tariff  
Mechanism

Since December 2011  
with attractive rates

# Stakeholders Involvement

## Ministry of Energy, Green Technology & Water

2015 – 985MW  
2020 – 2080MW  
2030 – 4000MW



## Energy Commission

Electricity Supply Act 1990:

1. Regulate Electricity Sector
2. Issuance of generating licence
3. Monitoring performance of the licensees
4. Audit/ Inspections



## Sustainable Energy Development Authority:

- RE Act 2011 :

  1. Issuance of FIT certificate
  2. Manage/Review FIT System
  3. Payment to Distribution Licensees
  4. Regulate the Technical & Operational, REPPA

# Tax Incentives

## Energy Service Company

- 100% Income Tax Exemption for Pioneer Status
- 100% Investment Tax Allowance
- Import Duty on energy conservation equipment
- Sales Tax Exemption on the purchase of equipment from local manufacturer

## Energy Conservation for Own Consumption

- 100% Investment Tax Allowance
- Import Duty on energy conservation equipment
- Sales Tax Exemption on the purchase of equipment from local manufacturer

## Tax Incentive for Energy Conservation

### Import EE Products

- Import Duty & Sales Tax Exemption on EE equipment; high efficiency motors and insulation materials

### Local Manufacturer of EE Products

- Sales Tax Exemption on the purchase of locally manufactured EE consumer goods; refrigerator, air conditioner, lightings, fan and television

# Govt. Support - Introduction of FIT mechanism

➤ Better rates ; project financially viable

Technology / Source	FiT Duration	Range of FiT Rates (USD cents/kWh)	Annual Digression
Biomass (palm oil waste, agro based)	16	8.7 – 11.0	0.5%
Biogas (palm oil waste, agro based, farming)	16	9.0 – 11.0	0.5%
Mini Hydro	21	7.0 – 8.0	0%
Solar PV & PP	21	27 – 57.4	8%
Solid waste & Sewage	16	12.0 – 14.5	1.8%

# Green Technology Financial Scheme (GTFS)

## Objective

- to help incorporating green technology elements in specific project related to the identified sectors.

## Mechanism

- Government will bear 2% of the total interest rate.
- In addition, the Government will provide a guarantee of 60% on the financing amount via Credit Guarantee Corporation Malaysia Berhad (CGC), with the remaining 40% financing risk.

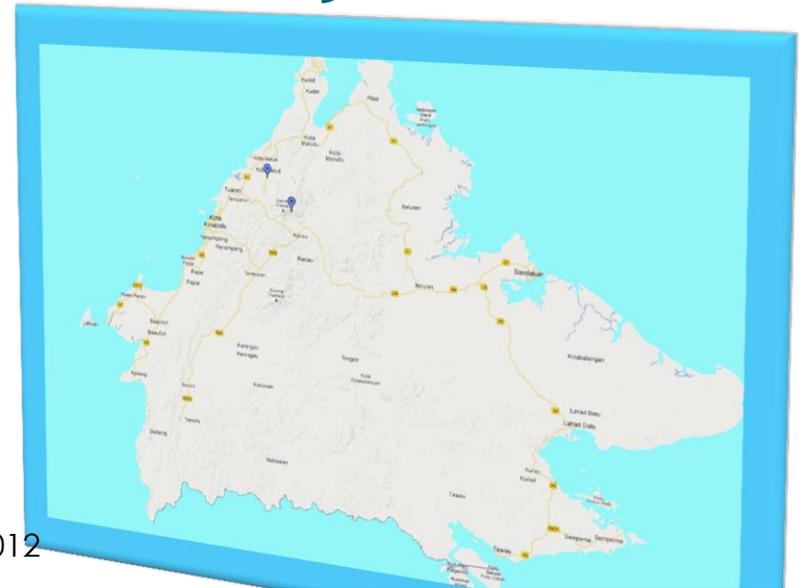
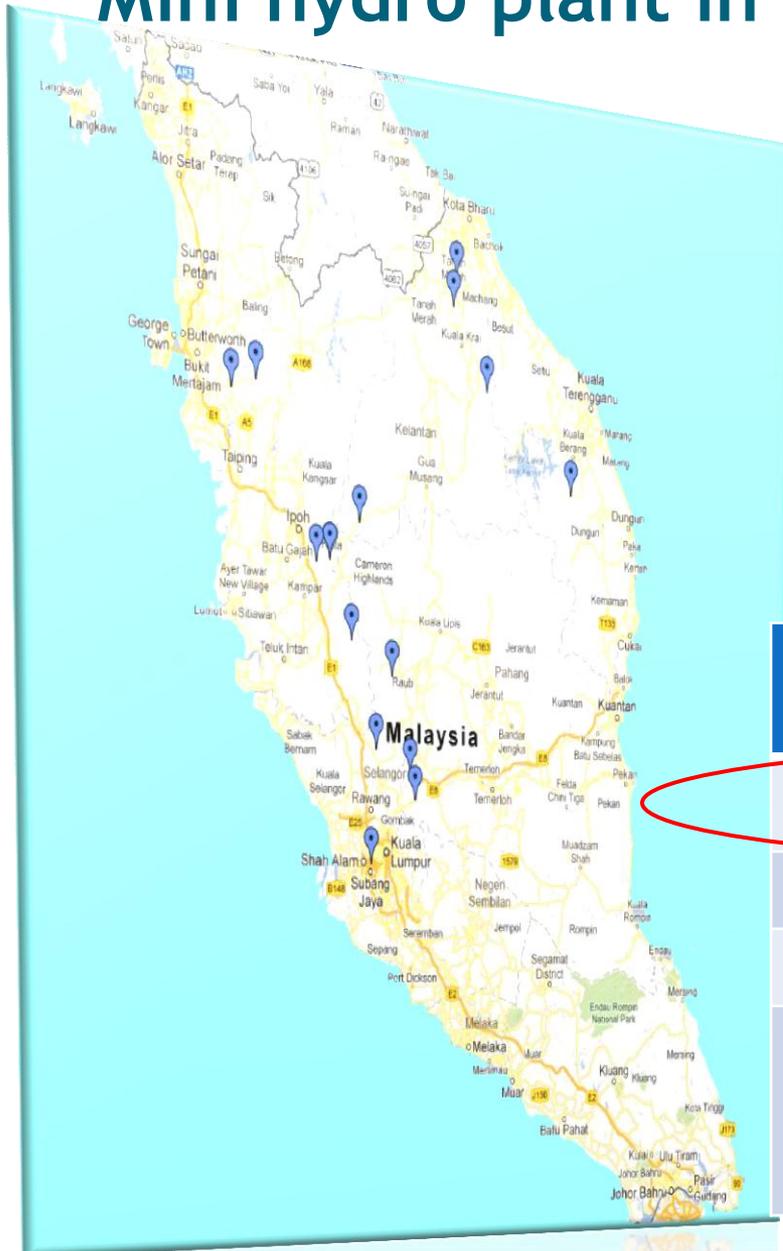
## Eligibility criteria

- Minimize degradation of environment;
- Zero or low green house gas emission;
- Safe for use and promotes healthy and improved environment for inhabitants;
- Conserve the use of energy and natural resources; and Promote the use of renewable energy resources.

# Development of Mini Hydro

1. Current status
2. Future projects

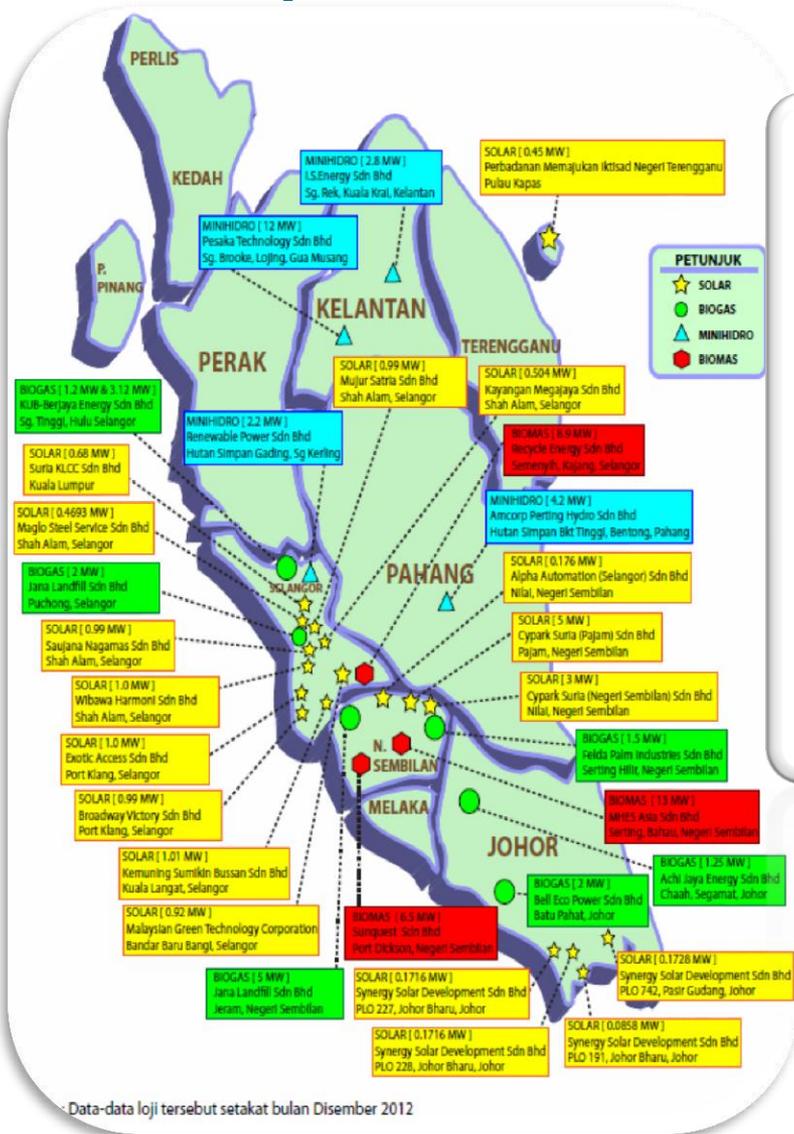
# Mini hydro plant in Peninsular Malaysia & Sabah



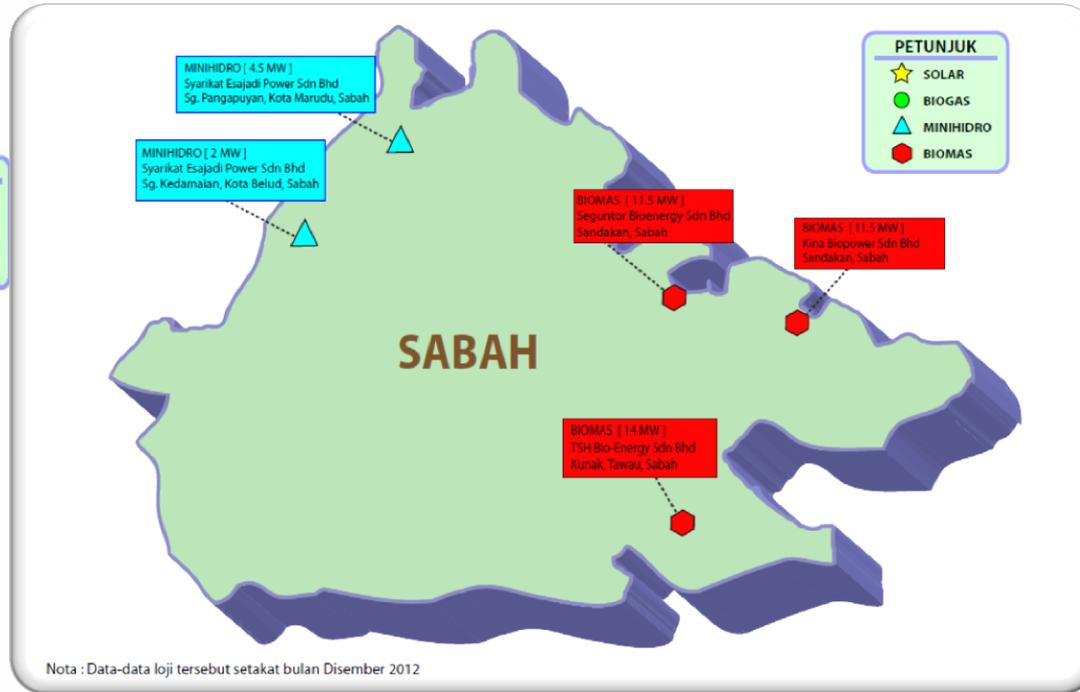
Data: Dec'2012

RE RESOURCE	LICENCE (nos & capacity)		FEED-IN APPROVAL HOLDER (FIAH)
	PERMENANT	PROVISIONAL	
MINI HYDRO	6, 27.7 MW	6, 42.25 MW	17 FIAH, 115.05 MW
BIOMASS	6, 67.4 MW	3, 23.5 MW	20 FIAH, 212.074 MW
BIOGAS	7, 16.07 MW	3, 4 MW	13 FIAH, 21.3332 MW
SOLAR PV Individual	2, 2.86 MW	8, 6.5906 MW	919 FIAH, 10.78 MW
Non-individual	7, 17.05 MW	40, 87.9293 MW	132 FIAH, 143.69 MW

# RE plants in Peninsular Malaysia & Sabah



Data-data loji tersebut setakat bulan Disember 2012

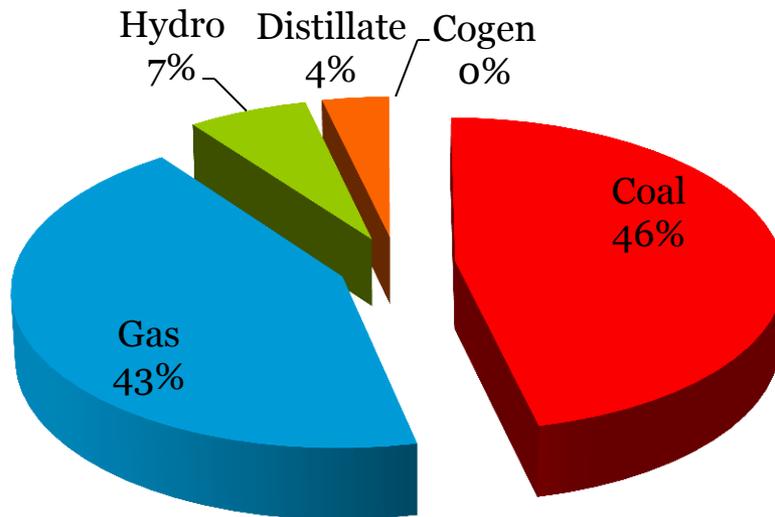


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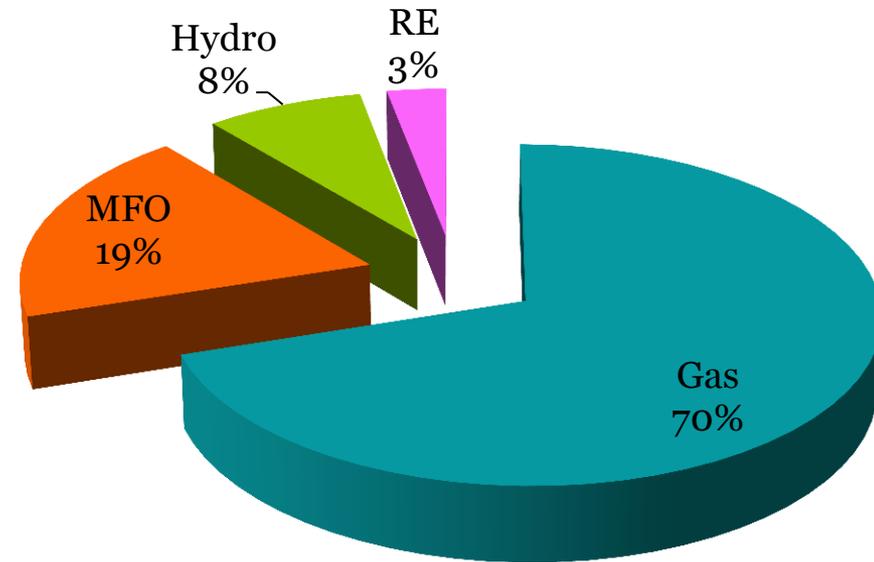


# Generation Mix

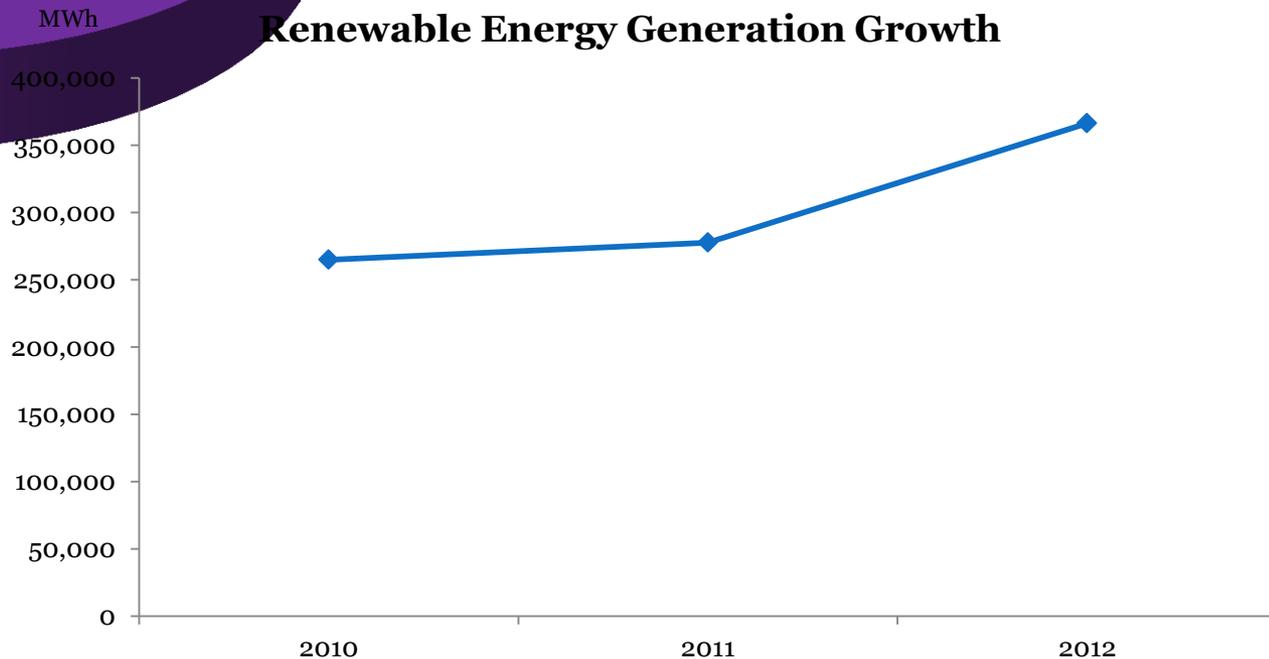
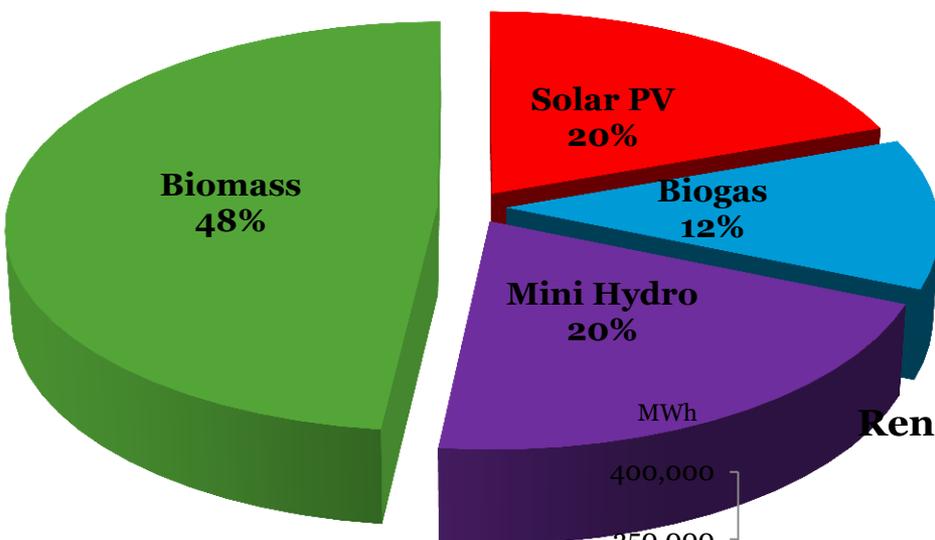
Generation mix in Peninsular Malaysia =  
382.7GWh  
(MD = 15.826MW)



Generation Energy Mix in Sabah =  
15860MWh  
( MD = 828MW)

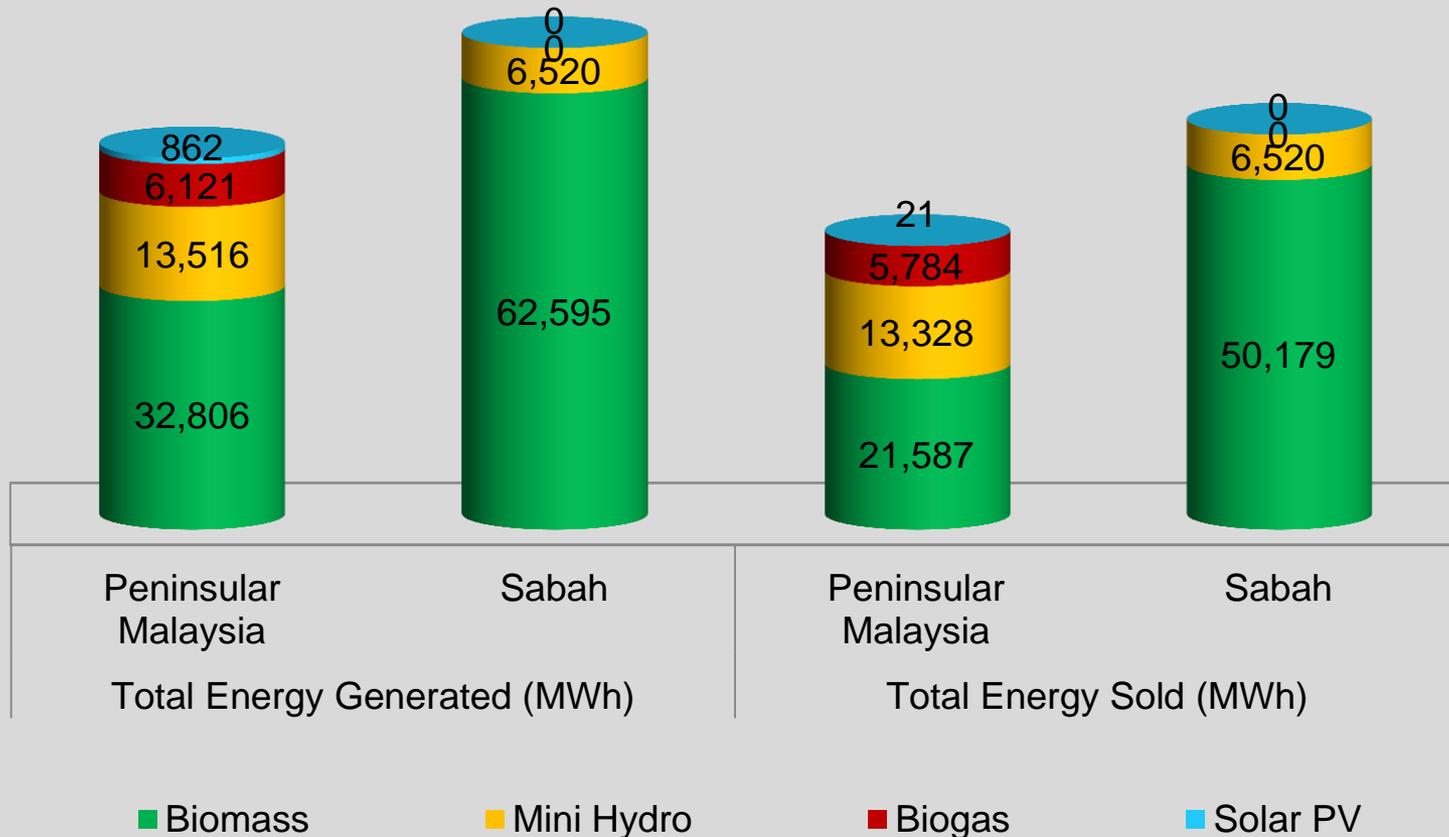


# Total Licensed Capacity (MW) = 131MW

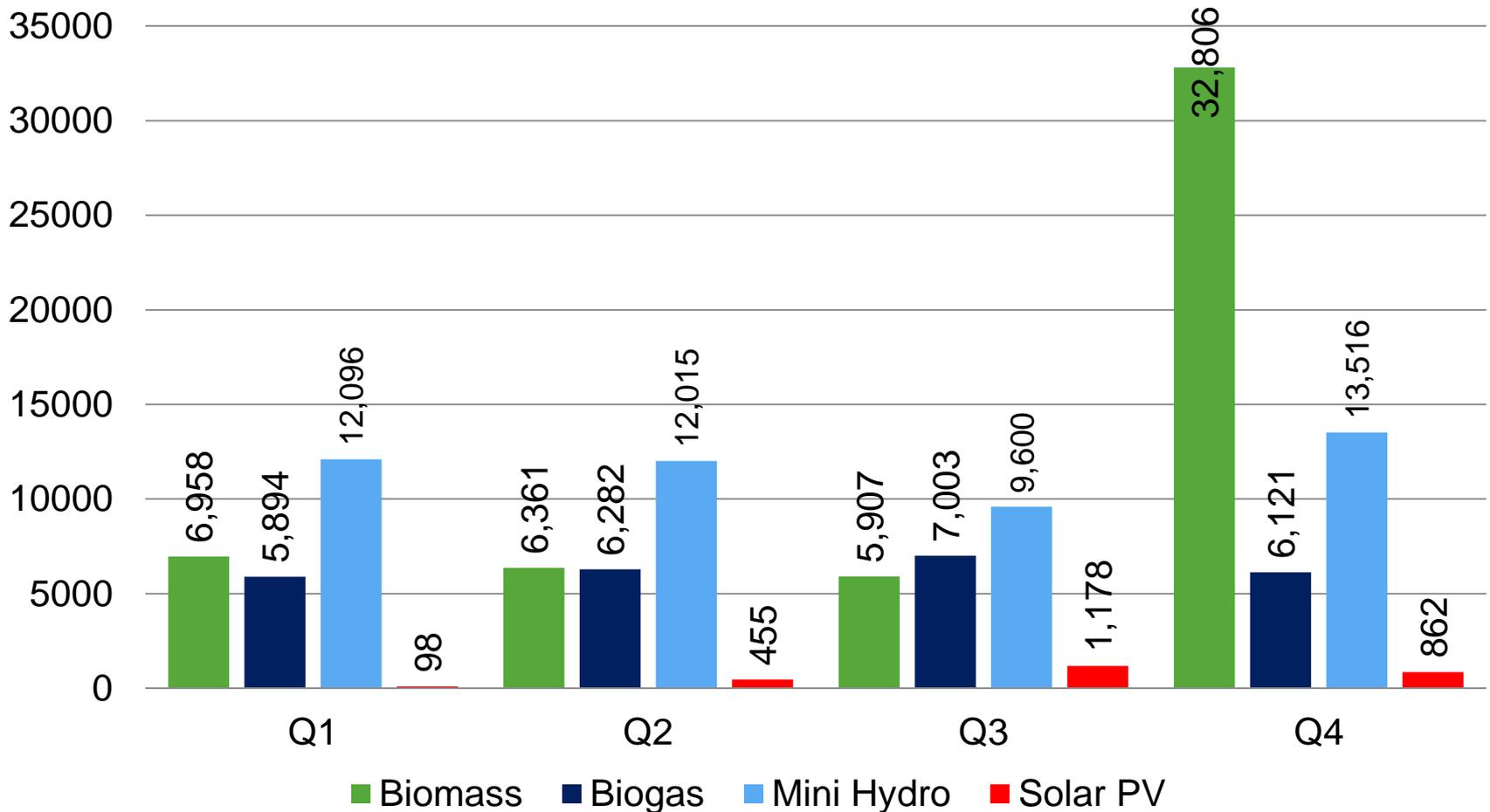


# Total energy generated & sold by RE power plant

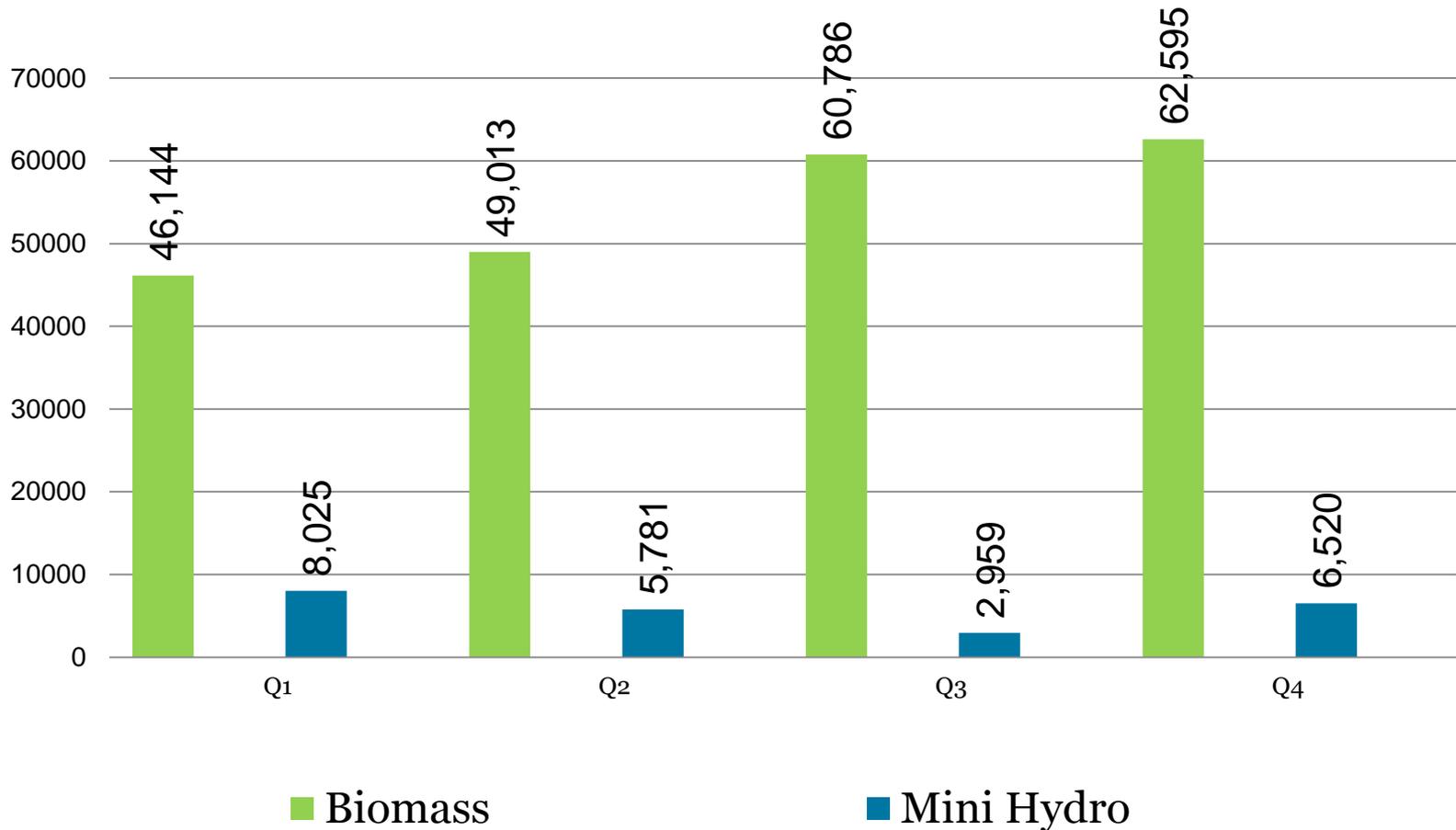
**TOTAL ENERGY GENERATED & SOLD BY RE POWER PLANT ON Q4/2012**



# TOTAL ENERGY GENERATED IN 2012 - PENINSULAR MALAYSIA

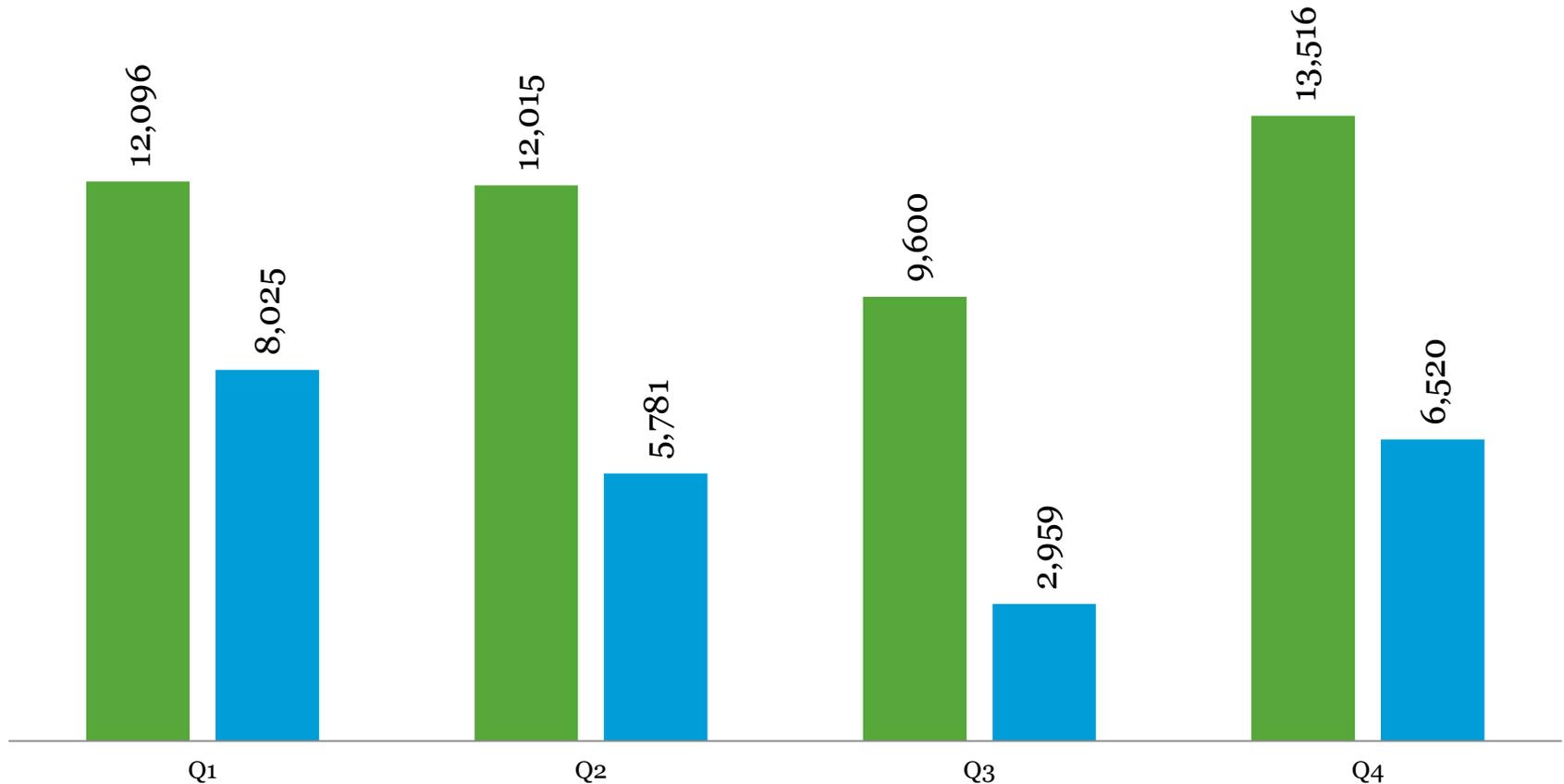


# TOTAL ENERGY GENERATED IN 2012 - SABAH



# TOTAL ENERGY GENERATED FROM MINI HYDRO POWER PLANT

■ peninsular malaysia ■ sabah

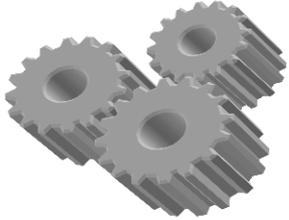


# ISSUES/CHALLENGES





- No's rainfall reduce generation
- Heavy rain cause flooding & overflow



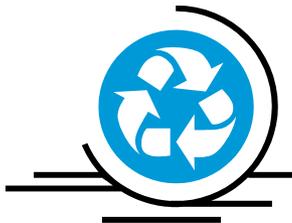
Water turbine design should be adjusted according to the intake;  
Water filter should be able to filter out sand, debris and dirt before it enters the turbine



Regulatory requirements – Land acquisition, Power System Study, Environmental Impact Assessment, Obtaining Statutory Clearances;



Financial Support/ Approval from Banks  
Equity limitations

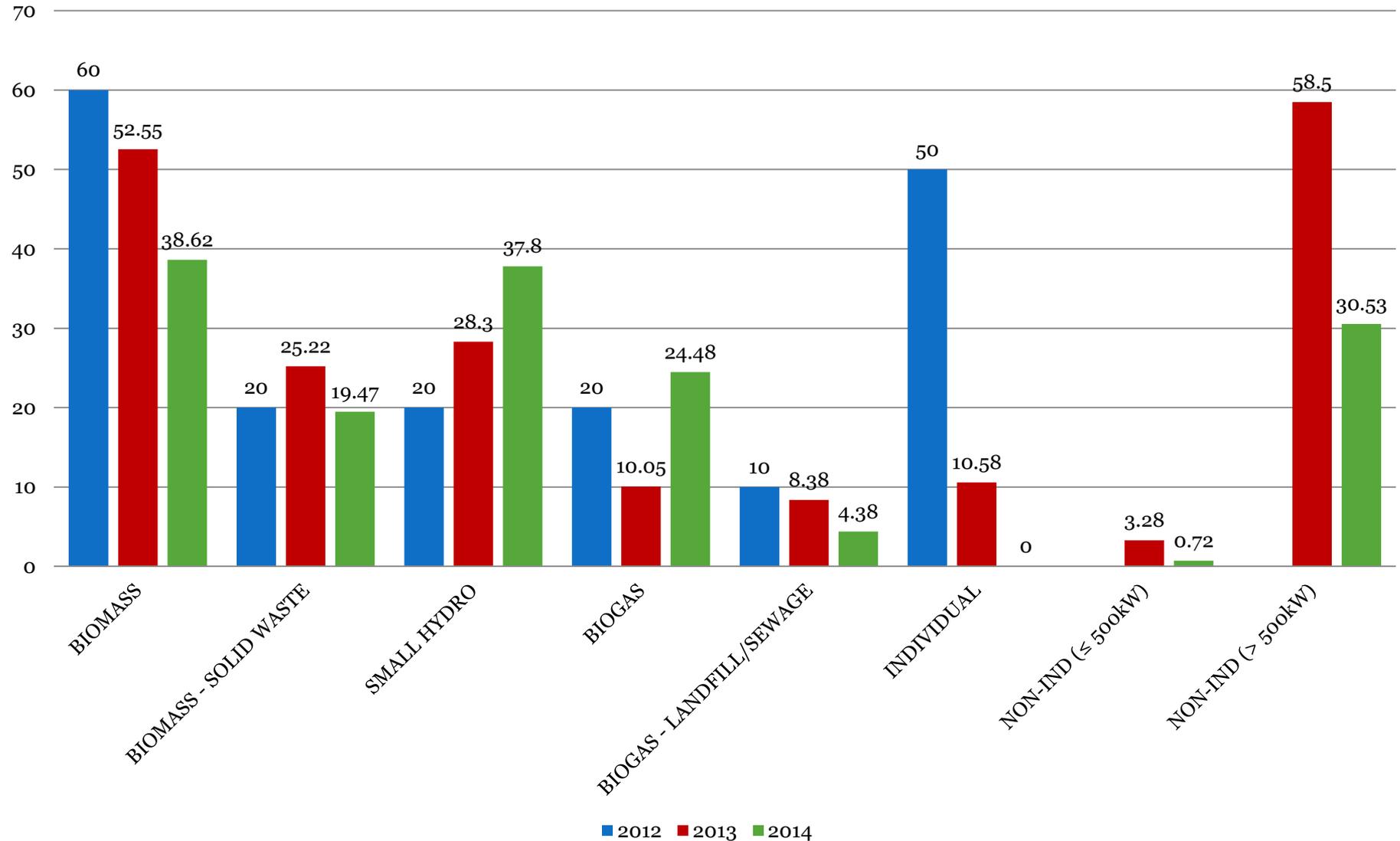


Water pollution during construction works  
Logging activities – cause flooding in some area

# DEVELOPMENT PLAN



# ANNUAL RE QUOTA BY SEDA (UP TO 2014), MW



## RE Policy: Projected RE Growth

Year	Biomass (MW)	Biogas (MW)	Mini-Hydro (MW)	Solar PV (MW)	SW (MW)	Total RE, Grid-Connected (MW)
2011	110	20	60	9	20	219
2015	330	100	290	65	200	985
2020	800	240	490	190	360	2,080
2025	1,190	350	490	455	380	2,865
2030	1,340	410	490	1,370	390	4,000
2035	1,340	410	490	3,700	400	6,340
2040	1,340	410	490	7,450	410	10,100
2045	1,340	410	490	12,450	420	15,110
2050	1,340	410	490	18,700	430	21,370



**THANK YOU**