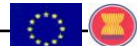




## Thailand 's Biomass Energy

**Phongjaroon SRISOVANNA**  
**Chief Country Coordinator COGEN 3**

**Energy Conservation Center of Thailand**  
**Bangkok Thai Tower, 108 Rangnam Rd.,**  
**Payathai, Ratchathevi, Bangkok 10400**  
**THAILAND**



## Energy Situation in Thailand

- The energy demand vary to the economy growth**
- The Energy Elasticity or the growth rate of energy consumption per GDP was more than 1**



## Final Energy Consumption in Thailand, 1992-2001

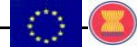
Type of Energy	Energy consumption (ktoe)									
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>Renewable</b>	9,818 28%	8,692 23%	8,430 21%	8,771 19%	8,861 18%	8,499 17%	7,885 17%	8,322 18%	8,599 18%	8,443 17%
<b>Commercial</b>	25,416 72%	28,926 77%	32,372 79%	36,958 81%	40,389 82%	40,956 83%	37,217 83%	38,807 82%	39,207 82%	41,099 83%
<b>Total</b>	35,234 100%	37,618 100%	40,802 100%	45,729 100%	49,250 100%	49,455 100%	45,102 100%	47,129 100%	47,806 100%	49,542 100%



## Energy Policy and Strategy for Thailand

**Development of Renewable Energy**

**Promotion of Energy Efficiency**



## Renewable Energy

- Solar/Wind
- Biogas
- Hydro
- Geo thermal
- Fuel Cell
- Biomass



## Small Power Producer (SPP)

**EGAT announced to purchase electric from SPP using the following fuels (waste or residual from agriculture, garbage, dendro thermal sources)**



## Main Agriculture Residue

- Rice Husk/ Straw
- Bagasse
- Palm Oil Waste
- Wood Waste

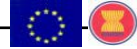


## Power Purchase Program from SPPs

Date	Cumulative Maximum Capacity (MW)
<b>Egat Announcement Date</b>	
● March 1992	300
● December 1995	1,444
● September 1996*	3,200
<b>Cabinet Resolution Date</b>	
● August 1997**	No limit

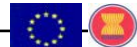
Remark : \* two announcements : 1) To increase the purchasing capacity from 1,444 to 3,200 for pending SPPs 2) To purchase power from projects using renewable energy only

\*\* Power purchase from Non-Firm Contract SPPs and / or SPPs using Renewable Energy



## Current Status (as of August 20, 2003)

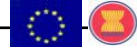
SPPs	Firm		Non-Firm	Total
	Co-gen.	Renew		
No. of SPPs	26	14	40	80
Purchased Capacity (MW)	1,852.0	265.6	322.3	2,439.9
Signed Contracts	26	5	34	65
No. of SPPs	1,852.0	65.4	281.9	2,199.3
Purchased Capacity (MW)				
Achieved COD	25	4	30	59
No. of SPPs	1,792.0	45.2	231.7	2,068.9
Purchased Capacity (MW)				



## Promotion of SPPs using Renewable Energy

**ENCON fund committee approved budget 2060 M฿ to subsidize SPPs using renewable energy.**

**In June 2002 the committee had approved 31 preposals 511 MW. But sofar only 15 proposals 214.1 MW were approved for the fund 1,235 M฿ after they had assessed the result of public hearing.**



## Biomass for Cogeneration

### Positive Factors :

- **Thailand is agriculture country. There is abundance of biomass production. The price of Biomass is still low.**
- **The exchange rate since 1997 have effected to the price of imported energy.**



- **Biomass is an environment friendly fuel**
- **There are many support programmes from government and others international funds (UNDP, GEF, EC etc.,)**



## Negative Factors :

- **High investment cost for modern biomass technologies**
- **People don't want any new plant in their area**
- **Lack of research personnel in the area of thermal conversion**
- **The conversion efficiency in utilizing biomass as an energy source is generally low**
- **Difficult assess to financing**



## Conclusion

### Development of Renewable Energy (target in next 10 years)

- **Increase renewable energy rate from 0.5% to 8%**
- **New power plant must generate power from renewable energy 3-5% of total capacity**



Thank You !

