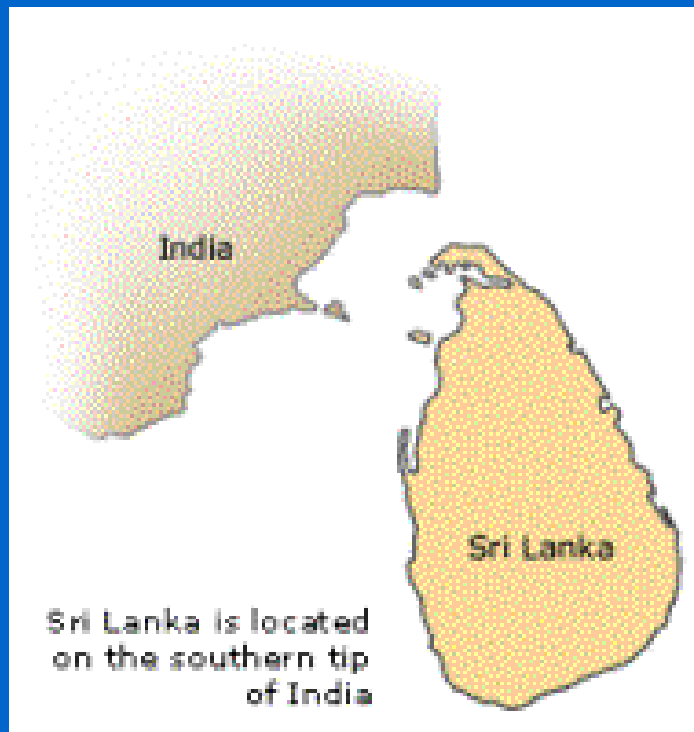


Country Overview – Sri Lanka

India - Sri Lanka Wind Energy Knowledge Exchange Program
November 3-6, 2009, Chennai India.



Upali Daranagama
Additional Secretary
(Planning & Development)
Ministry of Power & Energy
Sri Lanka

3rd November, 2009

Introduction

- **Country Overview**
- **Power Sector Policy Directions 1997**
- **Renewable Energy Development in Sri Lanka**
- **Government assistance provided to the private sector to promote renewable energy**
- **Wind Energy Development in Sri Lanka**

Country Overview

- **Country Profile**
- **Sri Lanka Power Sector**



Country Profile

Population: 19.7 million

Urban Population: 23%

Population Growth Rate: 0.83%

Life Expectancy: 72.6 years

GNP Per Capita: \$830

Percentage of Literate Adult Males: 95%

Percentage of Literate Adult Females: 90%

Number of electricity consumers = 4.1 Million

Percentage of Household Electrified ~ 83 %

Sri Lanka Power Sector

- *Generation: Ceylon Electricity Board (CEB)
Independent Power Producers (IPP)*
- *Transmission: CEB*
- *Distribution: CEB & Lanka Electricity Company (LECO)*
- *Regulator: Public Utilities Commission of Sri Lanka (PUCSL)*
- *Facilitation & promotion of renewable energy: Sri Lanka Sustainable Energy Authority (SEA)*

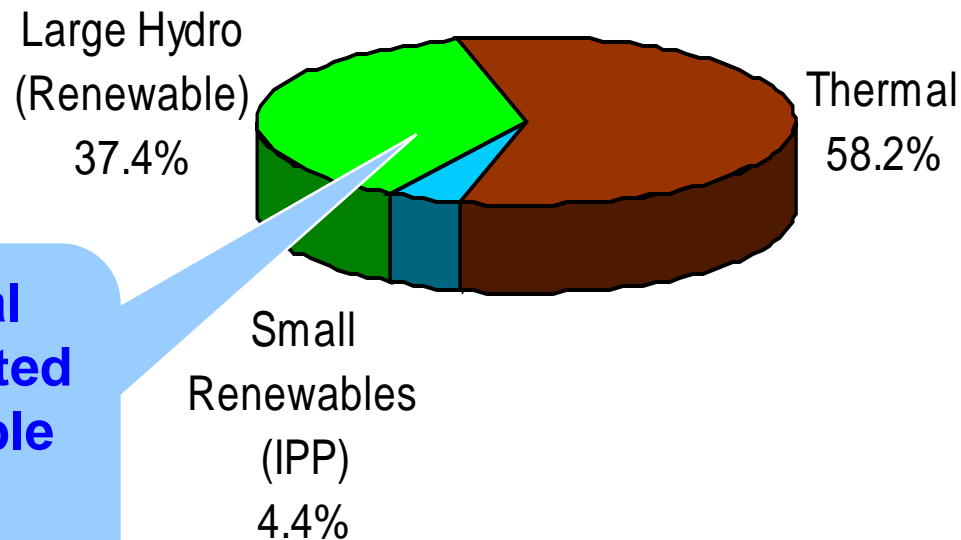
Sri Lanka Power Sector

Installed capacity in MW (as at 31/10/2009)

- *Large Hydro (CEB)* = 1207
- *Thermal (CEB)* = 548
- *Wind- Pilot Project (CEB)* = 3
- *Thermal (IPP)* = 737
- *Small Renewable (IPP)* = 182
- *TOTAL* = 2677 MW

Generation Mix by Source (2008)

Source	Energy GWh	Percentage
Large Hydro (Renewable)	3700	37.4%
Thermal	5763	58.2%
Small Renewables (IPP)	435	4.4%



41.8% of total energy generated from renewable energy in Sri Lanka

Power Sector Policy Directions 1997

- **Hydro power generation potential of the country will be developed to its full potential**
- **Private sector financing will be utilized for power generation from small hydro power plants**
- **All large scale hydro power generation facilities are to remain under the governmental control for the foreseeable future**



Classification of Non Conventional Renewable Energy Plants

- **Grid Connected :**

Connected to the integrated electricity distribution grid and deliver electricity exclusively to the grid

Acceptance level
Up to 10 MW

- **Self Generating :**

Connected to the grid and while delivering electricity to the grid, a part of the electricity generated is used by the developer

- **Off- Grid : Operate in isolation**

Non Conventional Renewable Energy

Present Status





Present Status of Non-Conventional Renewable Energy (NCRE) Sector as at 31/10/2009

Commissioned Projects

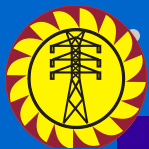
Projects Type	No. of Projects	Capacity (MW)
Mini Hydro Power	81	170.363
Biomass-Dendro Power	1	1.000
Biomass-Agricultural & Industrial Waste Power	2	11.000
Waste Heat Recovery Power	1	0.100
Solar Power	1	0.018
Total - Commissioned	86	182.481



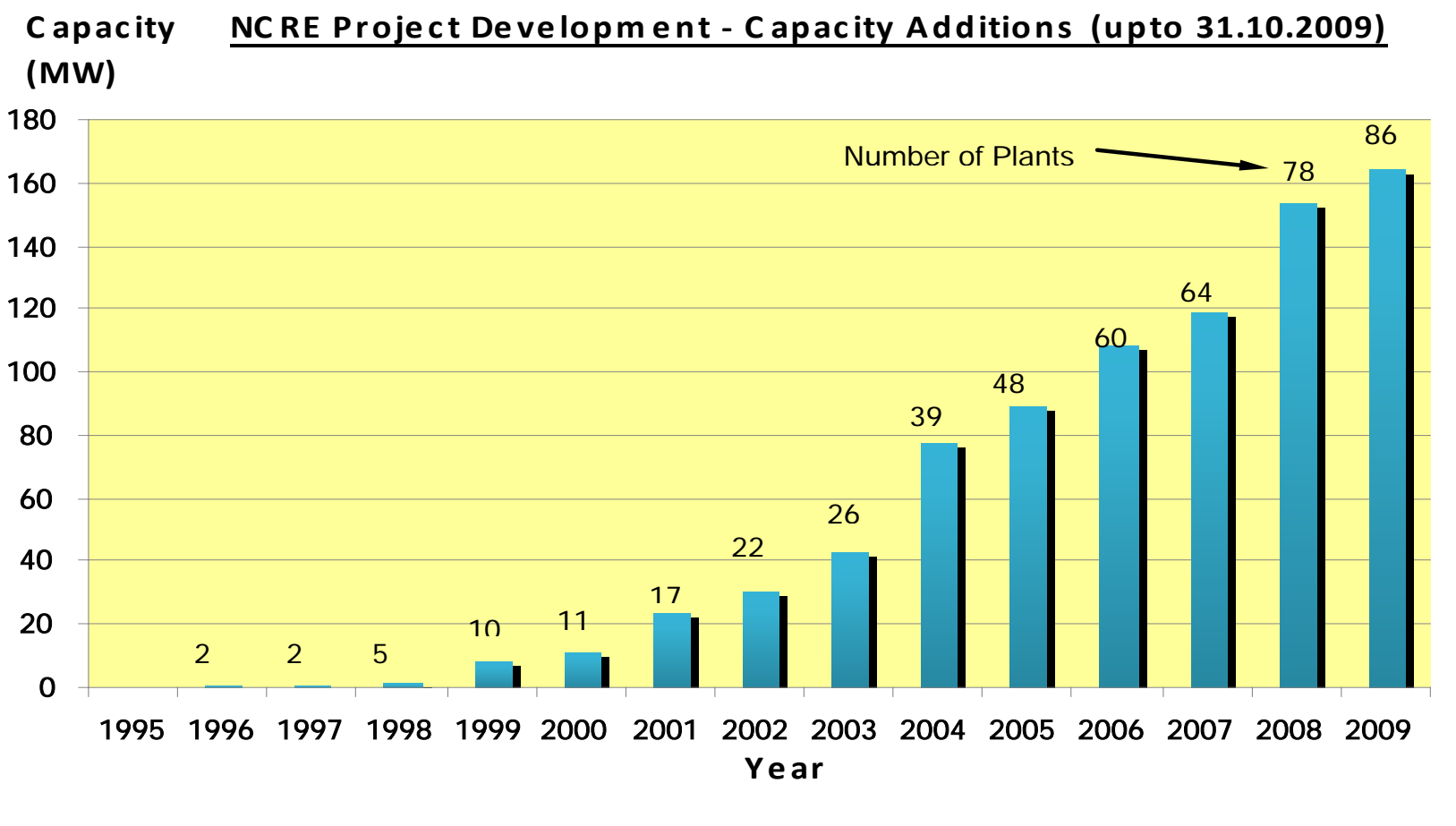
Present Status of Non-Conventional Renewable Energy (NCRE) Sector as at 31/10/2009

Standardized Power Purchase Agreements (SPPA) Signed Projects

Projects Type	No. of Projects	Capacity (MW)
Mini Hydro Power	21	43.680
Biomass-Dendro Power	1	0.270
Wind Power	4	40.000
Total - SPPA Signed	26	83.950



Present Status of Non-Conventional Renewable Energy (NCRE) Sector as at 31/10/2009

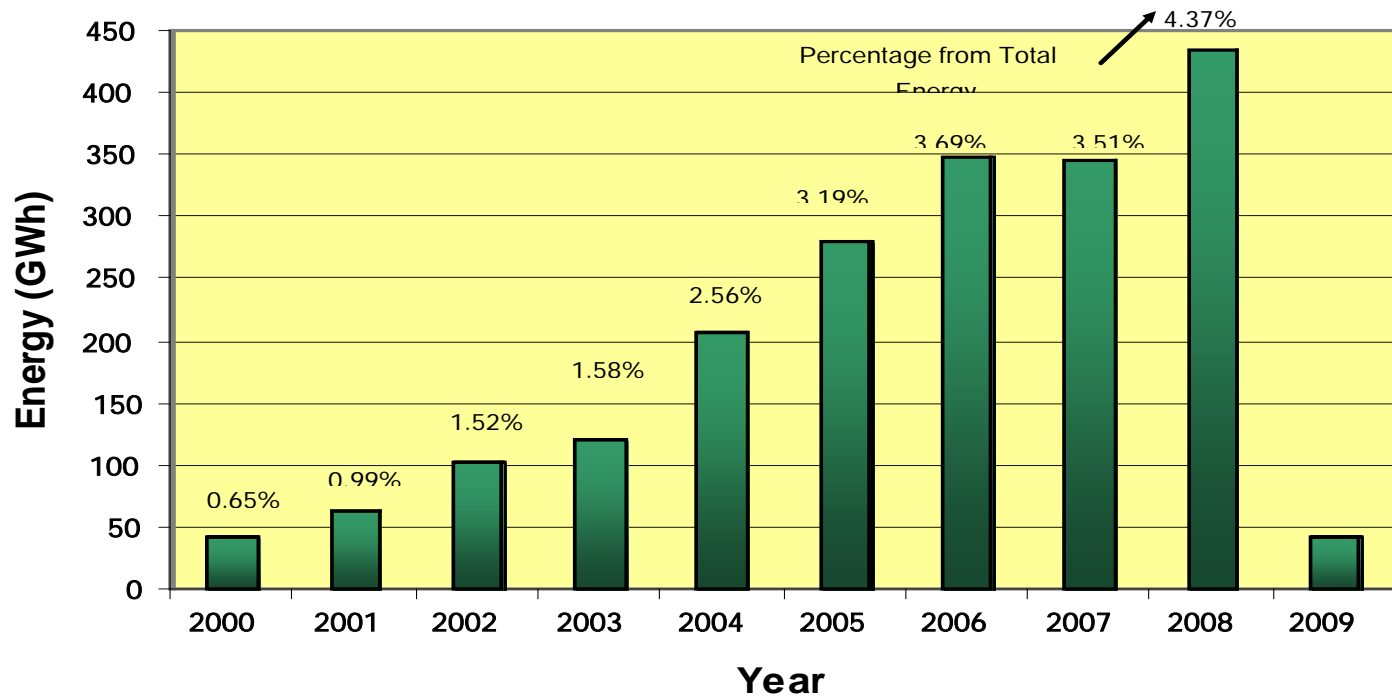


Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Capacity (MW)	2.0	8.6	11.2	23.6	31.2	43.1	77.9	89.3	109	119	150	182



Present Status of Non-Conventional Renewable Energy (NCRE) Sector as at 31/10/2009

Annual Energy Contribution from NCRE Projects (upto 31.10.2009)



Year	2000	2001	2002	2003	2004	2005	2006	2007	2008
Energy (GWh)	43.3	64.8	103.5	120.3	206	280	346	344	433

Government Assistance Provided

- **Included to the National Energy Policy - MOPE**
- **GOSL target to achieve 10 % from NCRE by 2015**
- **Cost based technology specific tariffs – MOPE/GOSL**
- **Facilitation and promotion of NCRE - through SEA**
- **Standardized Power Purchase Agreement with Standardized Terms & purchases – through CEB**

Wind Energy Development In Sri Lanka

- **Cost based technology specific tariffs – MOPE/GOSL**
- **Included to the National Energy Policy - MOPE**
- **GOSL target to achieve 10 % from NCRE by 2015**
- **Facilitation and promotion of NCRE - through SEA**
- **Standardized Power Purchase Agreement with Standardized Terms & purchases – through CEB**

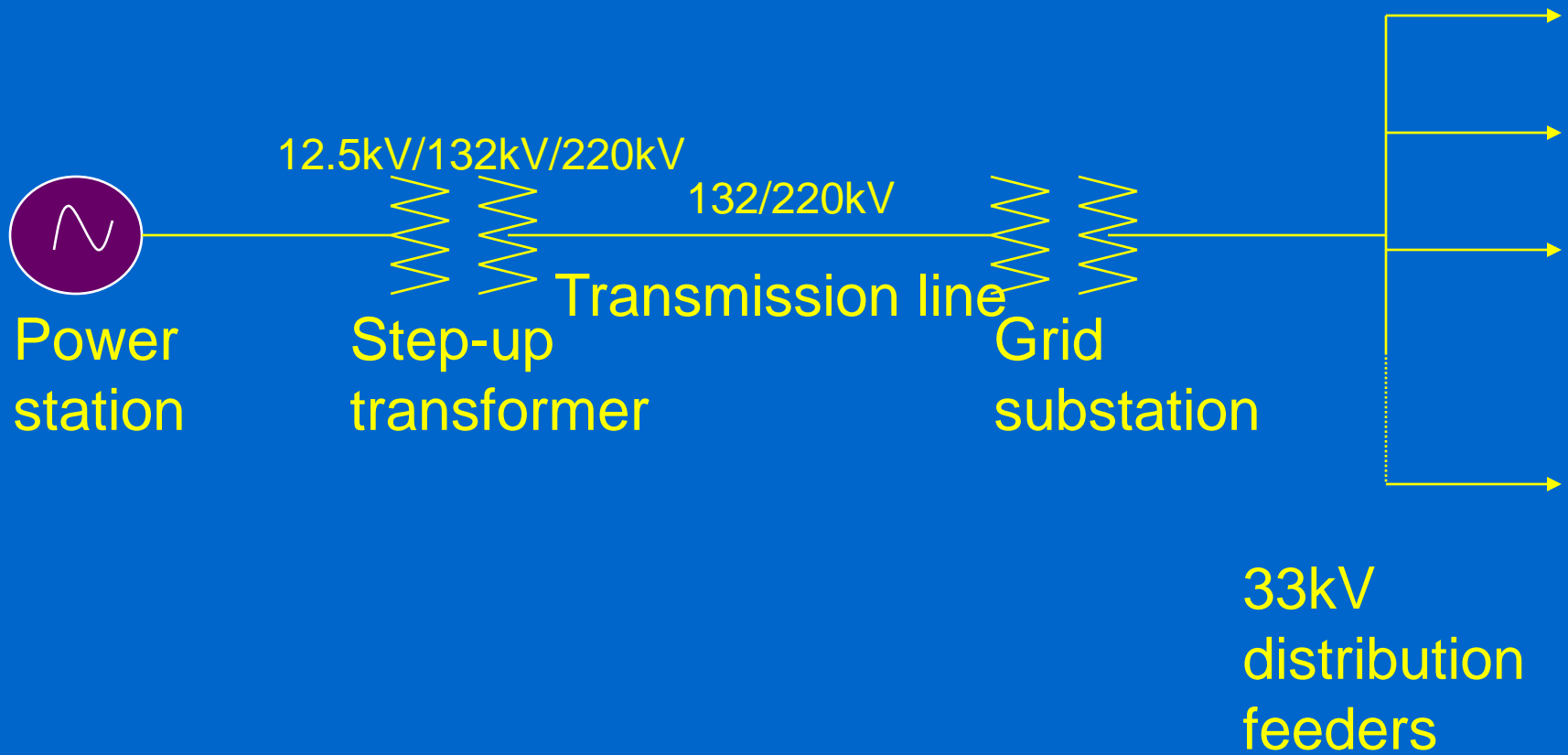
Wind Energy – R & D

- **Wind Atlas of Sri Lanka:**
{Surface, Satellite and Upper Air data}
Prepared by National Renewable Energy
Laboratory –USA

Wind Energy - Activities

- **CEB signed four (04) SPPAs with the Private Sector**
- **Total Capacity - 40 MW**
- **Location: Kalpitiya/Puttalam**
- **Present Status: three developers commenced the site work**

CEB Grid System



Technical issues

Impacts on the CEB Power System

- Stability and Operational issues (Need to study)

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-
-



Thank You

Ministry of Power & Energy

Ceylon Electricity Board

Sustainable Energy Authority