

Republic of Palau

# ENERGY POLICY (A)

## JICA

### TRAINING COURSE 2010



# Outline

- ◎ Palau – National Circumstance
- ◎ Current Energy Policy & measures
- ◎ Energy Demand & Supply (Stats)
- ◎ Gaps & Constraints
- ◎ Policy Difficulties
- ◎ Q & A



- Palau consist of 386 islands, of which 9 are inhabited;

- ## "No Island left behind"





# Current Energy Policy & Measures

VISION: "GREEN ENERGY MICRONESIA" (GEM)

GOAL: 20-30-20

- ✓20% Renewable Energy
- ✓30% EE & EC
- ✓Year 2020

- I. Provide clear direction on the future of Palau's Energy sector
- II. Appropriate regulation to securely deliver energy services at competitive prices.
- III. Maximize cost-effective EE , EC & RE resources while safeguarding our environment
- IV. Promoting environmentally sustainable energy technologies with the aim to substitute fossil fuels
- V. Supporting consumers through the transition towards a new energy sector.



## Policy & Measures continued

1. Improved Institutional Arrangements for Energy Sector Management
  - Upgrade to a Division or Bureau
2. Energy Efficiency (EE) & Energy Conservation (EC)
  - 30% improvement by year 2020
3. Renewable Energy
  - 20% by year 2020
4. Imported Fuel & Hydro carbons
  - Pursue opportunities / mechanisms for obtaining competitive fuel prices
  - Legal framework
1. Electric Power
  - Laws & Regulations that will ensure Security, Reliability & efficiency of power supply by the Utility.
  - Private sector participation (IPP)





# Energy Supply

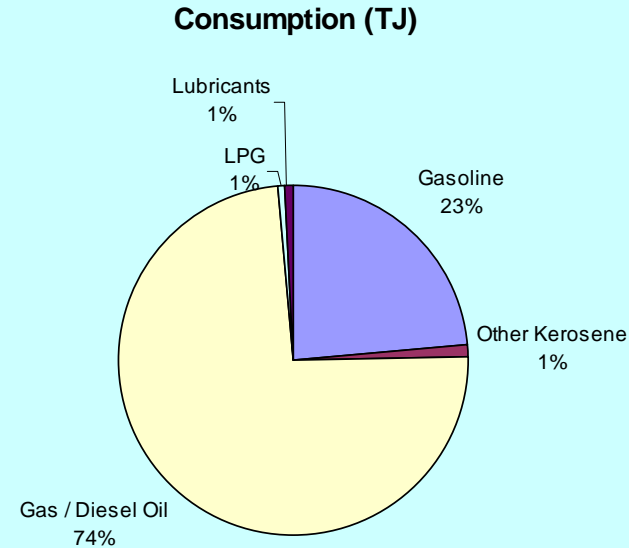
- ❖ Palau Public Utility Corporation
  - Sole power producer (by legislation)
  - Installed Capacity – 36MW
  - Current available output – 20MW
  - 95% of energy consumers supplied by central grid consisting of two power plants
  - Rest are independent plants on 3 isolated outer islands.
  - All are Diesel based generators

# Continued

- 99.3% of electricity is produced by diesel based generators.
- Estimated at 12 million gallons per annum of diesel import.

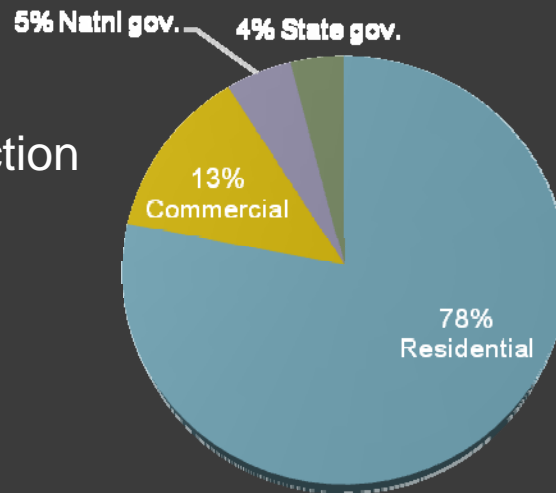
## FUEL BREAKDOWN

| Fuel Type        | Consumption (TJ) |
|------------------|------------------|
| Gasoline         | 267.26           |
| Other Kerosene   | 14.16            |
| Gas / Diesel Oil | 840.07           |
| LPG              | 6.18             |
| Lubricants       | 10.73            |
| <b>Total</b>     | <b>1,138.41</b>  |

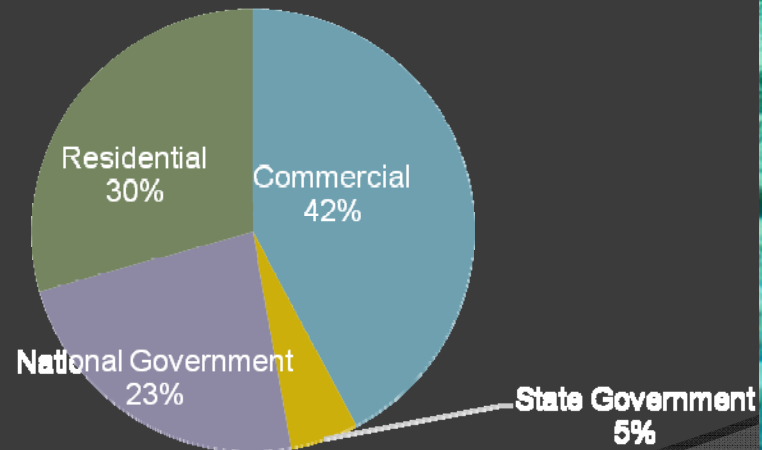


# Energy Demand

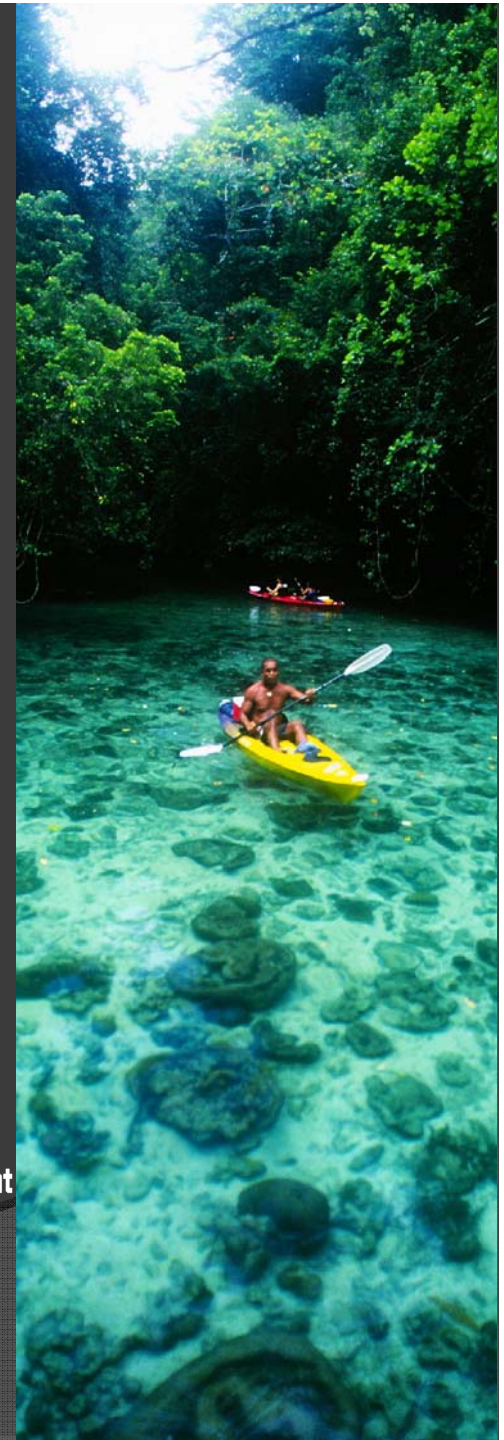
Percentage of connection base



Percentage of consumption base

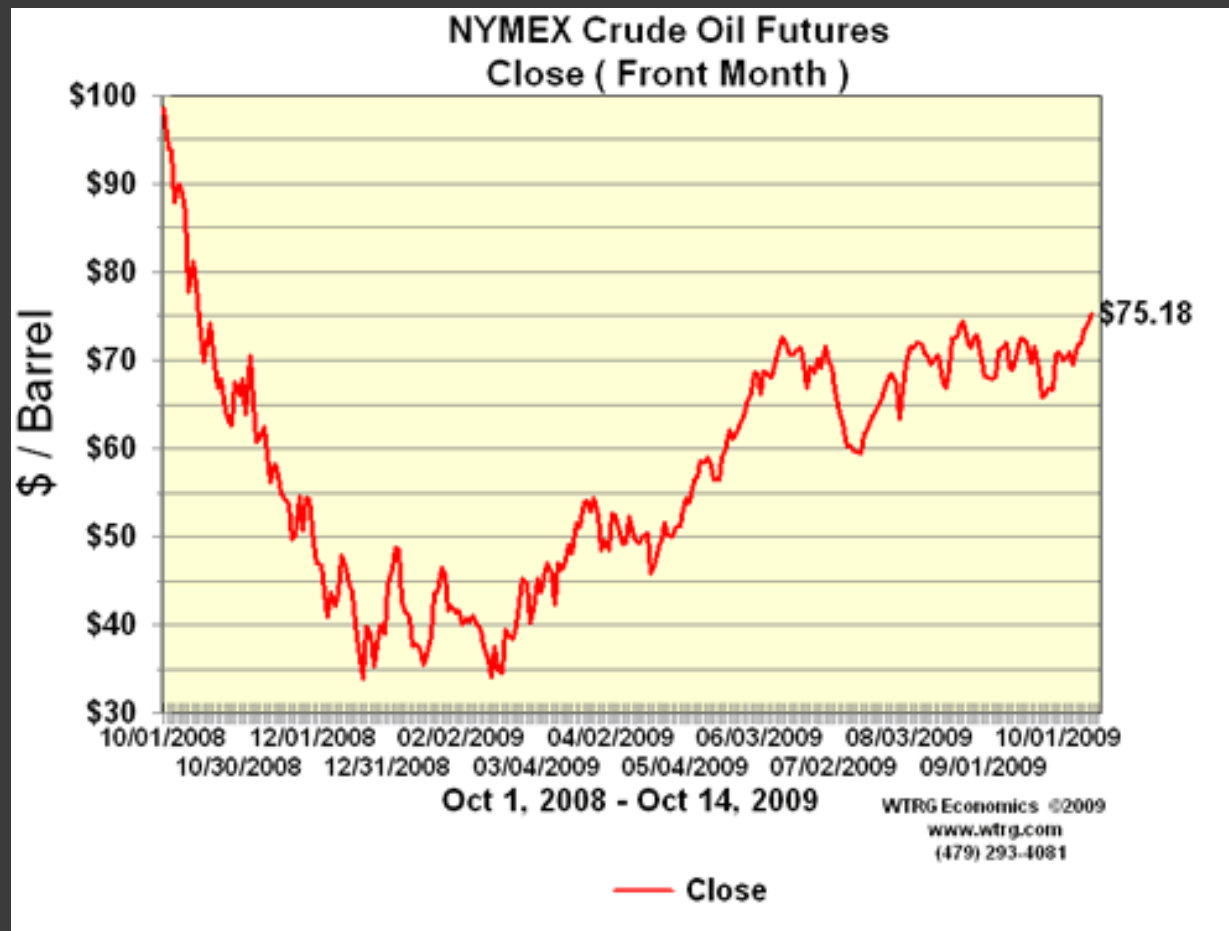


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# Vulnerability to price fluctuations





# Solar PV Technology

- 100kw Grid connected Solar PV – Capitol Building
    - Installed & producing since December 2008
  - 153kw Grid connected Solar PV – National Hospital
    - Installed & producing since December 2008
  - 180kw Grid connected Solar PV – International Airport
    - To be installed by mid 2011
    - Funded Cool Earth Japan
- 
- ✓ Technology has a proven track record
  - ✓ Proven to be successful in PIC
  - ✓ World Market prices are becoming economically viable.

# Untapped Energy Sources

| RE Resource               | Present Information  | Data Gaps/Remarks   |
|---------------------------|--|---|
| Solar                     | Estimated 5.5 – 5.9 kW/m <sup>2</sup> /day solar radiation   | <i>Need to be verified by further data gathering in specific sites. Relevant in existing sites.</i>   |
| Wind                      | Estimated 2.5 m/s  | <i>Limited information, may not be useful for power generation<br/>Need to be validated using wind data gathering system in specific sites at the desired hub height. Available meteorological data can be used for correlation</i> |
| Biomass                   | Estimated 75% forest cover, 15% coastal mangroves, 6% swamps, 60% of land area is densely forested | <i>No statistics<br/>Need to conduct a survey on biomass intended for fuel use</i>  |
| Microhydro                | Some small streams in Babeldaob  | <i>Need for survey of potential areas</i>   |
| Ocean Thermal/Wave energy | No available estimate on potential and possible sites  | <i>Need for survey<br/>Appear good for development, but not yet economical</i>  |



# Gaps and Constraints

- ⊙ There is currently no official energy policy to coordinate energy-related activities
- ⊙ Grid electricity is heavily reliant on diesel, making Palau vulnerable to fluctuations in the price of oil.
- ⊙ Lack of consistent statistical data for the energy sector.
- ⊙ Untapped potential RE sources
- ⊙ Lack of Capacity building at the Local Level

# Policy Difficulties

There are several policy issues that need to be addressed in the formulating an energy policy for Palau. These issues include:

- Institutional arrangements
  - Regulatory agency to enforce and implement energy policy (Energy Office)
  - Implementing agency to carry out energy strategic action plan
  - Strategic power sector planning
- Regulation
  - Government administrative endorsement
  - Legal framework
- Renewable Energies
  - how to promote RE in the absence of financial viability
- Operation of PPUC
  - Capacity building into the maintenance and operation of RE technology into the overall operations
  - Future operational forecast (conventional diesel generation vs. RE/clean energy)
- Net metering program
  - Adoption through parliament
  - Integration into operational implementation with local utility company
- Tariff setting
  - Utility company's cost recovery vs. Demand side customer base hardships
  - Integration of RE base tariff (grid connected solar systems)
- Pre-paid meters
  - Mandatory for delinquent utility customers
- How to manage oil and gas exploration
- Interface with donors
  - Maximize Palau's benefits from aid and donor contributions
- Environmental impacts of energy operations & Exploration
  - Further detailed environmental impact assessments on potential energy sources
- Energy Conservation and Efficiency
  - Development of local market in energy efficient technology products
  - Strengthening of education and awareness

Kom kmal mesulang  
(thank you very much)



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