TOWARDS AN ENERGY SECURE KIRIBATI

Vision: Available, accessible, reliable, affordable, clean and sustainable energy options for the enhancement of economic growth and improvement of livelihoods in Kiribati.

Development Partners Forum
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Betio, Tarawa

Ministry of Public Works and Utilities

PRESENTATION OUTLINE

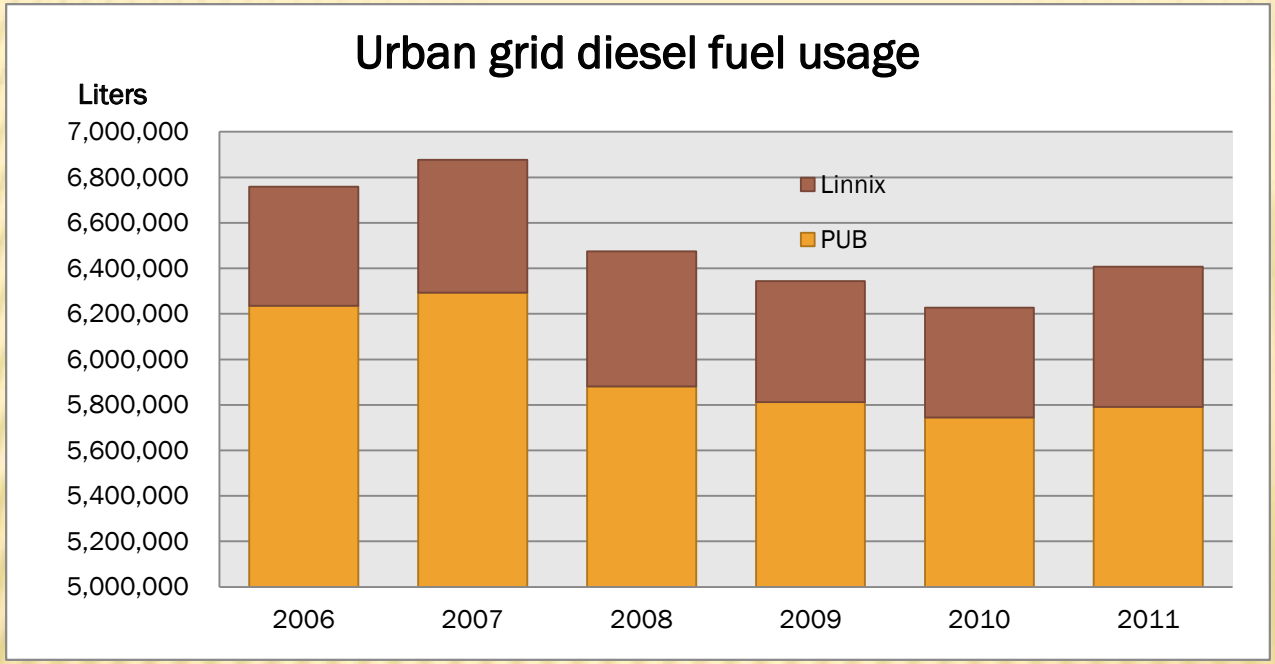
- Background
- Energy sectors current situation:
  1. Urban Energy and electrification
  2. Petroleum
  3. Outer Island and rural electrification
  4. Policy Planning and Coordination
- Fossil Fuel Reduction Target for electricity generation by 2025
- Possible areas of interventions
- Conclusion

BACKGROUND

- Kiribati is highly dependent on petroleum imports for electricity generation, transportation and domestic usage in the urban and rural areas,
- Traditional use of biomass for cooking and copra drying remain the largest use of Renewables in Kiribati.
- Kiribati is blessed with an abundant indigenous energy resources from solar, wind and surrounding ocean.
- Solar energy use for electrification account for only 1% of the total national electricity use.

1. URBAN ENERGY AND ELECTRIFICATION

Current situation:



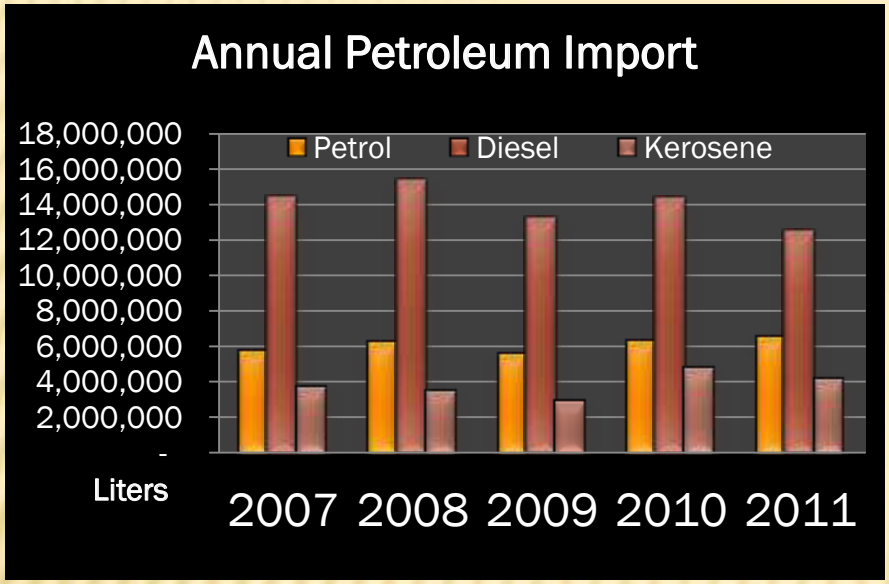
- Solar PV grid connected projects on South Tarawa 2014 – 2015.

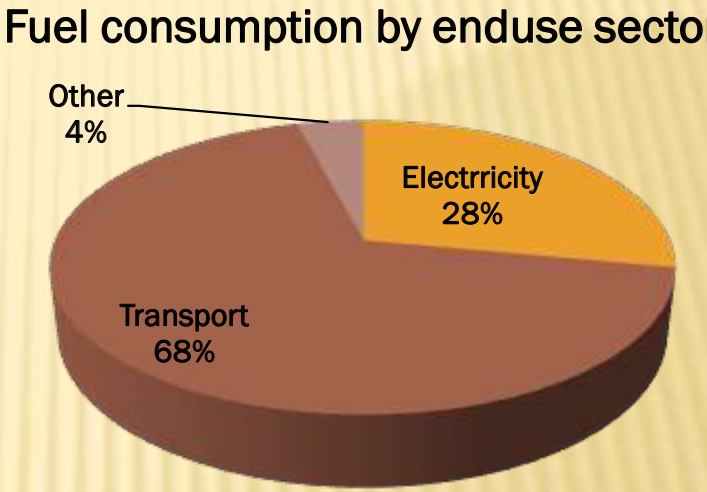
1. 500kW - World Bank Project (AUSAID and GEF)
2. 400kW - Masdar project (UAE)
3. 400kW -Pacific Environment Community Fund (Japan)

+ Around 1.3 MW in total (23% penetration)
+ These projects is expected to cut PUB spending on diesel fuel by $0.8 million/year.

2. PETROLEUM

Current situation





KOIL new fuel farm and rehabilitation project 2014-2015:

i) 3 new fuel tanks construction

ii) Rehabilitation of old fuel tanks and fuel discharge pipes.

- Increase storage capacity from 2.4 to 4.8 million m^3
- Increase turn around of Local Costal Tanker from 28 days to 60 days.
- Reduce transshipment cost of landed petroleum products by ~50%.
- Provide additional space for future storage expansion.

3. OUTER ISLAND AND RURAL ELECTRIFICATION

Current situation:

1. Household solar PV electrification 65% – (Existing 8,011 households 2010)
   - 2008: EDF8 - 1,803 households (currently rehabilitated from monthly fee + GoK subsidy)
   - 2010 Private – 1,120 households (Estimated according to Census 2010 less EDF8 project)
   - 2014: EDF10 - 2,290 households
2. Community Hall solar PV electrification 426 (66%) - (Existing 644 halls)
   - 2008: EDF8 - 86 halls
   - 2013: Taiwan – 310 halls
   - 2014: EDF10 – 30 halls
3. Senior Secondary Schools PV mini-grid system 80% - (Registered 9 + 1 school)
   - 2014: EDF10 - 7 schools (SJC and SWHS in Abaiang commissioned in March 2014)
   - 2014: IMELS - 1 school (awaiting 2nd Tranche of fund).
4. Senior Secondary Schools PV pump + Water Rectification System 90%
   - 2012: KAP2 – 1 system (AUSAID, NZAID and GEF)
   - 2013: IMELS – 8 systems
5. Biofuel pilot projects
   - 2010 – 2015: IMELS - Biofuel development and refining MPWU (awaiting 2nd Tranche of fund).
   - 2014 – 2015: WB - Pilot Small-scale biofuel plant for power generation in Abemama.

4. POLICY, PLANNING AND COORDINATION

Current situation

1) Kiribati National Energy Policy 2009.
   - Policy Planning and Coordination
   - Power
   - Outer Island and rural electrification
   - Petroleum
   - Efficiency and Conservation
   - Renewable energy
   - Environment
   - Transport
2. Renewable Readiness Assessment 2012.

   Analysis focuses on assessing the elements that need to be in place to build a strong and sustainable business model that supports the sustained deployment of renewable energy.

FOSSIL FUEL REDUCTION TARGET FOR ELECTRICITY GENERATION IN KIRIBATI BY 2025:

- South Tarawa: 45% (RE 23% and EE 22%)
  - PUB grid coverage
- Kiritimati: 60% (RE 40% and EE 20%)
  - Central grids (2 corridors)
- Rural public infrastructure: 60% (RE 40% and EE 20%)
  - Southern Kiribati Hospital and Ice plants
- Rural public and private communities: 100% (RE)
  - Boarding Schools, Island Council, private amenities and households.

1. POSSIBLE AREAS OF INTERVENTION

Urban Energy and Electrification

1. Upgrading PUB grid to increase RE penetration.
   + Cables, transformers, automation, duel fuel genset and storage.
2. RE for power generation in Kiritimati Island.
   × EU/NZ express interest
3. Grid centralization in Kiritimati Island.
   × Ronton to Tabwakea and Banana to Main Camp corridors
4. Additional fuel tank (2 Million liters)
5. Biofuel production facility in South Tarawa and Kiritimati Island.

2. POSSIBLE AREAS OF INTERVENTION

Outer Island and rural electrification

1. Health facilities solar PV electrification
   - Southern Kiribati Hospital and Health Centres/Clinics
2. Education facilities solar PV electrification.
   - Junior Secondary Schools
3. Fishing centers solar PV refrigeration.
   - JICA funded existing ice plants in the outer islands.
4. Community facilities solar PV electrification.
   - Boarding Schools, Island Council, private amenities and households.
5. Solar powered desalination plants for vulnerable communities.
   - Identified communities from MPWU studies

3. POSSIBLE AREAS OF INTERVENTION

Policy, Planning and Coordination

1. Review existing fuel supply contract.
2. Electricity tariff review.
3. National Energy Roadmap development.
   - including Transportation fossil fuel reduction target.
4. Policies and legislations development/review:
   - Renewable Energy and Energy Efficiency,
   - Electricity (Generation, Transmission, Distribution and Wiring Codes)
   - Petroleum.
5. HR capacity building for the energy sector development
   - Science, Engineering, Planning and Economics.

CONCLUSION

- The energy supply sector has good potential to reduce GHG emissions in electricity generation using proven low generation carbon technologies.
- The energy demand sector has been progressing to complement the social economic development goals.
- The transport sector has good mitigation potential but it is constrained by ever increasing travel demands and consumer behaviour.
- Biofuels development from coconut oil could become the significant diesel fuel substitute for electricity generation and transportation.
- Energy efficient engines and electric vehicles promotion could decrease the growing demand for gasoline fuel.

Pioneering in the utilization of alternative energy technologies existing will fast pace the transition to an energy secure Kiribati.

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