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NATIONAL BIOENERGY DEVELOPMENT: REPUBLIC OF THE PHILIPPINES

Presented By:

MARRIZ B. AGBON

President, Philippine Agricultural Development and Commercial Corporation (PADCC)
Focal Person, National Biofuels Feedstock Program
Focal Person, National Convergence Initiative for Sustainable Rural Development

Outline

1. National Bioenergy Policy Framework
2. Current Status of National Bioenergy Development
3. New Opportunities for Bioenergy Development
4. Potential Future Challenges
5. Lessons Learnt and Way Forward

1.National Bioenergy Policy Framework

- The following laws form the policy framework for bioenergy in the Philippines

  - ✓ Republic Act 9367 (Biofuels Act of 2006)
  - ✓ Joint Administrative Order (JAO) 2008-1 (Guidelines on Biofuels and Biofuels Feedstock Producer Accreditation)
  - ✓ Republic Act 9513 (Renewable Energy Act of 2008)

1.National Bioenergy Policy Framework

- Major Laws on Bioenergy
  - ✓ RA 9367 (Biofuels Act of 2006)
    - ✓ Reduce dependence on imported fuels
    - ✓ Mandates the local production and use of biodiesel and bioethanol
      - ✓ 1% biodiesel blend within 3 months from the effectivity of the law
      - ✓ 2% biodiesel blend by February 2009
      - ✓ 5% bioethanol blend by February 2009
      - ✓ 10% bioethanol blend within 4 years from the effectivity of the law per the recommendation of the National Biofuels Board (NBB)
    - ✓ Biodiesel is sourced from coconut
    - ✓ Bioethanol is sourced from sugarcane, molasses, cassava and sweet sorghum

1.National Bioenergy Policy Framework

- Major Laws on Bioenergy
  - ✓ RA 9367 (Biofuels Act of 2006)
    - ✓ **Incentives:**
      - ✓ Zero Specific and Value Added Tax
      - ✓ Exemption from wastewater charges
      - ✓ Financial assistance from Government Financial Institutions (GFIs)
    - ✓ **Creation of the National Biofuels Board (NBB)**
      - ✓ Implement, monitor and evaluate the National Biofuel Program (NBP)
        - ✓ Role of NBB Members
          - ✓ Department of Energy (DOE)– heads the NBB
          - ✓ Department of Agriculture (DA) – ensures feedstock supply
          - ✓ Department of Finance (DOF) – monitors importation
          - ✓ Department of Science and Technology (DOST) – spearheads research and development
          - ✓ Department of Labor and Employment (DOLE) – ensures social coverage of farmers and industry laborers

1.National Bioenergy Policy Framework

- Major Laws on Bioenergy
  - ✓ RA 9367 (Biofuels Act of 2006)
    - ✓ **Prohibited Acts:**
      - ✓ Diversion of biofuels to purposes other than those stated by the law
      - ✓ Failure to comply with the minimum blend mandate
      - ✓ Distribution, sale and use of harmful additives
      - ✓ Failure to comply with the Philippine National Standard (PNS)
    - ✓ **Penal Provisions:**
      - ✓ Cancellation of Operation/Business/License Permit
      - ✓ Penalty of 1-5years imprisonment
      - ✓ Fine ranging from P 1,000,000.00 (US$ 23,255.81) to P 5,000,000.00 (US$ 116,279.07)

1.National Bioenergy Policy Framework

- Major Laws on Bioenergy
  - ✓ RA 9367 (Biofuels Act of 2006)
    - ✓ **Implementing Rules and Regulations (IRR)**
      - ✓ Creation and Organization of the NBB
        - ✓ Technical Working Group
        - ✓ Technical Secretariat
        - ✓ Inclusion of the following Agencies to the NBB:
          - ✓ Department of Trade and Industry (DTI) – investment promotions
          - ✓ Department of Agrarian Reform (DAR) – development of the agrarian reform communities and beneficiaries
          - ✓ Department of Environment and Natural Resources (DENR) –monitor environmental impacts

1.National Bioenergy Policy Framework

- Major Laws on Bioenergy
  - ✓ RA 9367 (Biofuels Act of 2006)
    - ✓ **Implementing Rules and Regulations (IRR)**
      - ✓ All biofuels must be compliant with the PNS
      - ✓ All oil companies must apply for accreditation from DOE
      - ✓ Submission of Performance Compliance Report and Periodic Reports
      - ✓ Sugar Regulatory Administration (SRA) to ensure sufficient domestic supply of sugarcane
      - ✓ Philippine Coconut Authority (PCA) to ensure sufficient domestic supply of coconut/copra
      - ✓ Develop and Implement Social Amelioration and Welfare Program for biofuels workers

1.National Bioenergy Policy Framework

- Major Laws on Bioenergy
  - ✓ JAO 2008-1 (Guidelines on Biofuels and Biofuels Feedstock Producer Accreditation)
    - ✓ Established a common framework/guideline in accrediting biofuels and biofuels feedstock producers
    - ✓ Specific Guidelines on Land Utilization:
      - ✓ Cereals shall not be used as biofuels feedstock
      - ✓ Land will be used must be approved by the Local Government Units (LGU)
      - ✓ Irrigated lands shall not be used for biofuels feedstock production
      - ✓ Lands planted with staple food crops shall not be used for biofuels feedstock production
      - ✓ Ecologically fragile lands shall not be used for feedstock production
    - ✓ Requirements for Biofuel Feedstock Producer
      - ✓ Environmental Compliance Certificate (ECC)
      - ✓ Certificate of Precondition from the National Commission on Indigenous People (NCIP)
      - ✓ Certification of DA

1.National Bioenergy Policy Framework

- Major Laws on Bioenergy
  - ✓ JAO 2008-1 (Guidelines on Biofuels and Biofuels Feedstock Producer Accreditation)
    - ✓ Requirements for Biofuel Producer, Distributor and Seller
      - ✓ Certificate of Registration and Accreditation issued by DOE
        - ✓ Prerequisite:
          - ✓ Securities and Exchange Commission (SEC), Philippine Economic Zone Authority (PEZA), Cooperative Development Authority (CDA) and/or the DTI Registration
          - ✓ Developers Profile and Letter of Intent
          - ✓ ECC
          - ✓ Certificate of Pre-Condition
          - ✓ DA Certification
          - ✓ DAR Conversion Certificate
          - ✓ LGU Permit
      - ✓ Renewal of Certificate of Accreditation every 5 years

1.National Bioenergy Policy Framework

- Major Laws on Bioenergy
  - ✓ JAO 2008-1 (Guidelines on Biofuels and Biofuels Feedstock Producer Accreditation)
    - ✓ **One-Stop Shop**
      - ✓ Undertake preliminary screening of applications
      - ✓ Coordinating body to the NBB members
      - ✓ Collects facilitation and processing fees
    - ✓ **Prohibited Acts and Sanctions**
      - ✓ Culpable violations to the provisions of RA 9367
        - ✓ 1st Offense: P 200,000.00 (US$ 4,651.16)
        - ✓ 2nd Offense: P300,000.00 (US$ 6,976.74) and revocation of registration
      - ✓ Export without permit; Failure to provide official documents; Refusal to allow inspection
        - ✓ 1st Offense: P50,000.00 (US$ 1,1692.79)
        - ✓ 2nd Offense: P100,000.00 (US$ 2,325.58)
        - ✓ 3rd Offense: P 200,000.00 (US$ 4,651.16)
      - ✓ Non-compliance with Registration and Reportorial Report
        - ✓ Penalty of P 210,000.00 (US$ 4,883.72)

1.National Bioenergy Policy Framework

- Major Laws on Bioenergy
  - ✓ RA 9513 (Renewable Energy Act of 2008)
    - ✓ Accelerate the exploration and development of renewable energy (RE) resources
      - ✓ Achieve energy self-reliance
        - ✓ To reduce the country's dependence on fossil fuels
        - ✓ minimize the country's exposure to price fluctuations
      - ✓ Adoption of clean energy to mitigate climate change
      - ✓ Promote socio-economic development in rural areas
    - ✓ DOE will be the lead implementer of the law
    - ✓ **On Grid Development (Within 1 year from law effectivity):**
      - ✓ Set the minimum percentage of generation from eligible renewable energy resources
      - ✓ Determine the fixed tariff to be paid to electricity produced from each RE technology

1.National Bioenergy Policy Framework

- Major Laws on Bioenergy
  - ✓ RA 9513 (Renewable Energy Act of 2008)
    - ✓ **On Grid Development (Within 1 year from law effectivity):**
      - ✓ Issue, keep and verify RE Certificates corresponding to energy generated from eligible RE facilities
      - ✓ Establish net metering interconnection standards and pricing methodology
    - ✓ **Off Grid Development (Within 1 year from law effectivity):**
      - ✓ Provide missionary electrification, source a minimum percentage of total RE annual generation
    - ✓ **Government Share:**
      - ✓ 1% of gross income on RE development projects, except geothermal resources
      - ✓ 1.5% for geothermal resources
      - ✓ Exemptions: biomass and micro-scale projects for communal purposes and non-commercial operations (up to 100kW)

1.National Bioenergy Policy Framework

- Major Laws on Bioenergy
  - ✓ RA 9513 (Renewable Energy Act of 2008)
    - ✓ **Environmental Compliance:**
      - ✓ All activities are subject to ECC application
    - ✓ **Creation of the National Renewable Energy Board (NREB) and Renewable Energy Management Bureau (REMB)**
      - ✓ Created Sub-committees and working groups to facilitate the formulation of mechanisms, rules and guidelines on the following:
        - ✓ Renewable Portfolio Standard / Feed In Tariff
        - ✓ Net Metering
        - ✓ Green Energy Option
        - ✓ Renewable Energy Trust Fund
    - ✓ **Incentives (RE Developers)**
      - ✓ Duty-free Importation
        - ✓ 10-year exemption from tariff duties

1. National Bioenergy Policy Framework

- Major Laws on Bioenergy
  - ✓ RA 9513 (Renewable Energy Act of 2008)
    - ✓ **Incentives (RE Developers)**
      - ✓ Tax Credit on Domestic Capital Equipment and Services
        - ✓ Equivalent to 100% of custom duties and value-added tax
      - ✓ Income Tax Holiday (ITH)
        - ✓ 7-year tax holiday, including new investments but not to exceed 3 times
      - ✓ Corporate Tax Rate
        - ✓ 10% of net taxable income after ITH
      - ✓ Net Operating Loss Carry Over
        - ✓ 3-year losses carried over 7 years, except those resulting from availment of other incentives
      - ✓ Accelerated Depreciation
        - ✓ Non-availment of ITH
        - ✓ Depreciation rate not exceeding twice the normal
      - ✓ Zero Percent Value Added Tax Rate
        - ✓ 0% on sale of fuel or power generated from RE sources

1.National Bioenergy Policy Framework

- Major Laws on Bioenergy
  - ✓ RA 9513 (Renewable Energy Act of 2008)
    - ✓ **Incentives (RE Developers)**
      - ✓ Special Realty Tax Rate on Equipment and Machinery
        - ✓ Not to exceed 1.5% of original cost
      - ✓ Cash Incentive for Missionary Electrification
        - ✓ 50% of the universal charge due
      - ✓ Exemption from Universal Charge
        - ✓ Generator's own consumption
        - ✓ Free distribution in off-grid areas
      - ✓ Payment of Transmission Charges
      - ✓ Average per kWh rate of all other electricity transmitted through the grid
      - ✓ Tax Exemption on Carbon Credits
      - ✓ Exemption for the sale of Certified Emission Reduction (CER)

1.National Bioenergy Policy Framework

- Major Laws on Bioenergy
  - ✓ RA 9513 (Renewable Energy Act of 2008)
    - ✓ **Incentives (RE Commercialization)**
      - ✓ Tax and Duty-free Importation of Components, Parts and Materials
        - ✓ Exemption from importation tariff and duties and value added tax
      - ✓ Tax Credit on Domestic Capital Components, Parts and Materials
        - ✓ 100% equivalent of custom duties and value added tax
      - ✓ Income Tax Holiday
        - ✓ 7-year tax exemption
      - ✓ Zero-rated Value Added Tax Transactions
        - ✓ 0% VAT on transactions with local suppliers of goods, properties and services

1.National Bioenergy Policy Framework

- Major Laws on Bioenergy
  - ✓ RA 9513 (Renewable Energy Act of 2008)
    - ✓ **Renewable Energy Trust Fund (RETF)**
      - ✓ Funded from:
        - ✓ Proceeds from the emission fees collected consistent with Republic Act No. 8749 or the Philippine Clean Air Act;
        - ✓ One and 1/2 percent (1.5%) of the annual net income of the following:
          - ✓ Philippine Charity Sweepstakes Office
          - ✓ Philippine Amusement and Gaming Corporation
          - ✓ National Treasury of the Philippine National Oil Company and its subsidiaries
          - ✓ Proceeds of the Government share
        - ✓ Contributions, grants and donations
        - ✓ Any revenue generated from RETF
        - ✓ Proceeds from the fines and penalties imposed by RA 9513

1.National Bioenergy Policy Framework

- Major Laws on Bioenergy
  - ✓ RA 9513 (Renewable Energy Act of 2008)
    - ✓ **Financial Assistance Programs**
      - ✓ Development Bank of the Philippines (DBP)
      - ✓ Land Bank of the Philippines (LBP)
      - ✓ Phil-Exim Bank
      - ✓ Other GFIs
    - ✓ **Prohibited Acts**
      - ✓ Non-compliance to the RPS rules and DOE guidelines
      - ✓ Refusal to undertake net metering arrangements
      - ✓ Tampering of public documents/official records
    - ✓ **Penalty Provisions:**
      - ✓ Cancellation of Contract and Operations Permit
      - ✓ Imprisonment of 1-5 years
      - ✓ Fine of P 1,000,000.00 (US$ 23,255.81) to P 100,000,000.00 (US$ 2,325,581.40) or twice the amount of damage cost

1.National Bioenergy Policy Framework

- Major Laws on Bioenergy
  - ✓ RA 9513 (Renewable Energy Act of 2008)
    - ✓ **Implementation Rules and Regulations (IRR)**
      - ✓ Crafted and promulgated within 6 months effectivity of the law
      - ✓ Adopted the provisions of the law
      - ✓ National Renewable Energy Board (NREB)
        - ✓ DOE – lead agency
        - ✓ DTI – investment promotions
        - ✓ DOF – fiscal management
        - ✓ DENR – environmental protection
        - ✓ National Power Corporation (NPC) – manage transmission lines
        - ✓ National Transmission Corporation (TRANSCO) – construction and maintenance of transmission facilities
        - ✓ DBP – financing window
        - ✓ LBP – financing window

1.National Bioenergy Policy Framework

- Major Laws on Bioenergy
  - ✓ RA 9513 (Renewable Energy Act of 2008)
    - ✓ **Implementation Rules and Regulations (IRR)**
      - ✓ National Renewable Energy Board (NREB)
        - ✓ Phil-Exim Bank – financing window
        - ✓ Philippine Electricity Market Corporation (PEMC) – whole sale electricity market
        - ✓ RE Developers – industry players
        - ✓ Private distribution utilities
          - ✓ Electric cooperatives - distribution utilities
          - ✓ Electricity suppliers - distribution utilities
        - ✓ Non-governmental organizations
        - ✓ Organization of Technical Working Group
        - ✓ Organization of Technical Secretariat
      - ✓ Environmental Compliance
        - ✓ All RE activities are subject to existing environmental regulations

1. National Bioenergy Policy Framework

Selected Planning and Monitoring Indicators

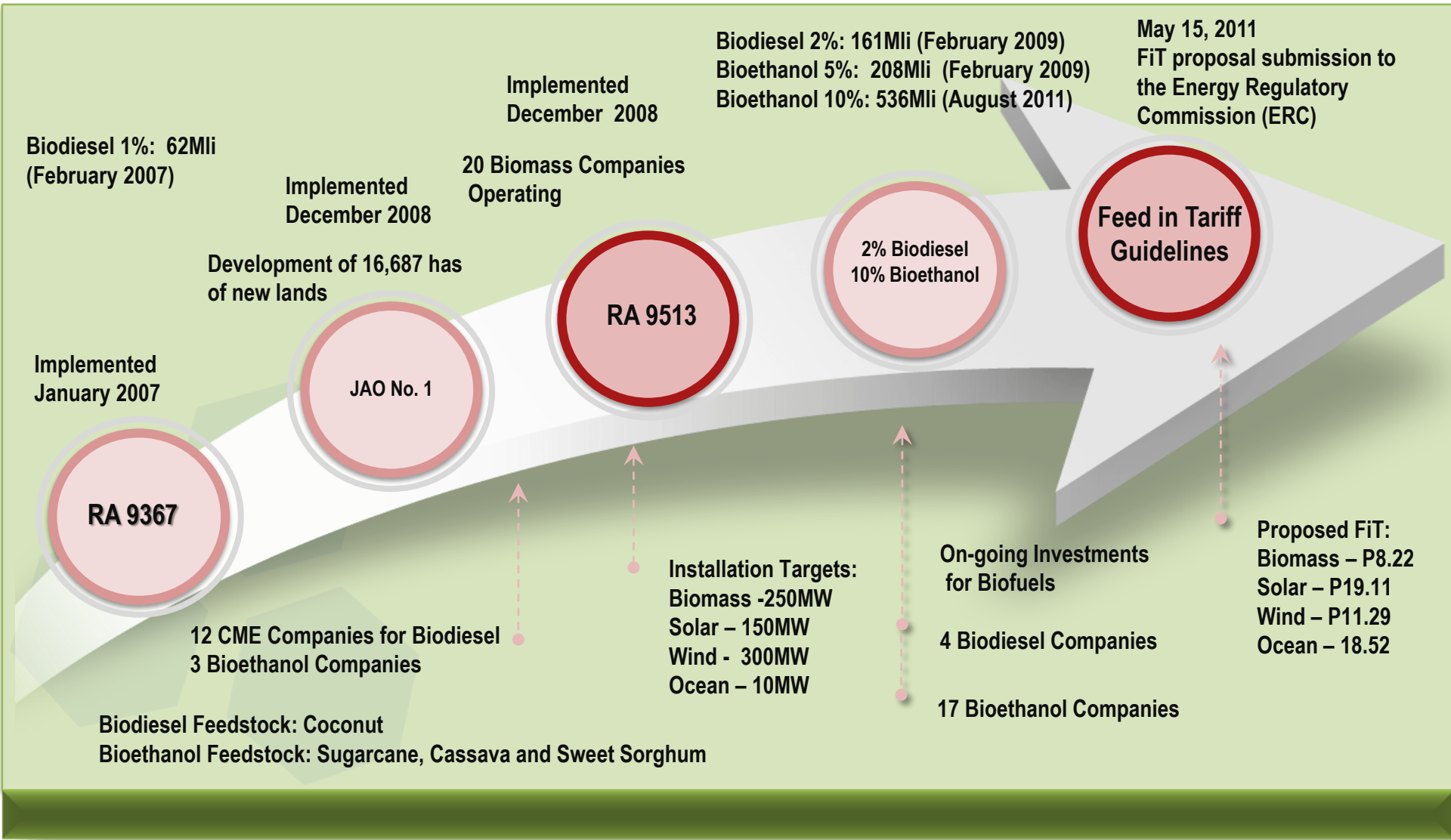
Food security and Energy Sufficiency	• Food production areas • Food sufficiency/security targets • Energy production areas • Energy sufficiency targets
Access to land	• Land use plan • Agribusiness ventures/development contracts beneficial to stakeholders
Rural and social development	• Increase in household income • Areas (hectares) developed • Jobs generated
Labor conditions	• Social Amelioration and Welfare Program

1. National Bioenergy Policy Framework

Selected Planning and Monitoring Indicators

Environmental	• Greenhouse gas emissions • Soil characteristics • Water availability • Environmental protection • Climate Change resilient technology
Social	• Food security • Energy sufficiency • Access to land (Land tenure) • Labor conditions (Income and Social Amelioration) • Empowered Organizations (Organized Farmer Groups)
Economic	• Economic development • Financial viability • Value Chain

2. Current Status of National Bioenergy Development



3. New Opportunities for Bioenergy Development

Biofuels

- Establishment of 18 ethanol distilleries with 30Mli annual capacity to meet the 10% bioethanol blend mandate.
- Development of new areas for Sweet Sorghum (107,000has) and Cassava (372,222has) for ethanol feedstock production to meet the 10% mandate
- Investments in Lignocellulosic Feedstock (rice hull and corn stovers)

Renewable Energy

- Investments in Wind, Solar, Hydro, and Ocean RE technologies
- Biomass: Potential of 433 MW (39 projects proposed by the Biomass Alliance of the Philippines)
- Biomass: 250 MW Installation Target as proposed by NREB
- Biomass: GHG Emission Reduction
  - 2.16 Million Tonnes CO2 from Fossil Fuel Displacement
- Biogas: 13.69 million heads of swine (2009 estimates)
  - Manure : 48,173 tons per day or 17.6 million tons per year

3. New Opportunities for Bioenergy Development

Inventory of Lignocellulosic Feedstock for Ethanol Production

Rice Straw

Maximum Ethanol Potential of Selected Provinces from Rice Straw, 2010.

Province	Rice Straw Production Volume (MT)	Ethanol Potential (MLi)
Nueva Ecija	1,374,173	217.12
Pangasinan	940,700	148.63
Isabela	865,839	136.80
Total	**3,180,712**	**502.55**

Corn Stover

Maximum Ethanol Potential of Selected Provinces from Corn Stover, 2010.

Province	Corn Stover Production Volume (MT)	Ethanol Potential (MLi)
Isabela	956,208	168.29
Bukidnon	755,976	133.05
Total	**1,712,184**	**301.34**

3. New Opportunities for Bioenergy Development

Inventory of Lignocellulosic Feedstock for Power Generation

Rice Hull

Provinces with at least 2MW Power Potential using Rice Hull Feedstock.

Province	Available Rice Hull (MT)	Power Potential (MW)
Nueva Ecija	164,901	2
Pangasinan	112,884	2
Isabela	103,901	2

Corn Cobs

Provinces with at least 2MW Power Potential using Corn Cobs Feedstock.

Province	Available Corn Cobs (MT)	Power Potential (MW)
Isabela	241,630	5
Bukidnon	194,236	4
South Cotabato	176,525	4
North Cotabato	81,367	2
Ilocos Norte	73,814	2
Lanao del Sur	69,210	2
Cagayan	67,208	2

3. New Opportunities for Bioenergy Development

Biomass Volume Estimates

Crop	Planted/ Harvested Area, Million Ha.	Production , Million Tonnes p.a.	Estimated Volume of Biomass, Million Tonnes p.a.
Rice (2010)	4.270	15.31	Hull = 3.79 Straw= 15.37
Coconut (2010)	3.359	14.85	Husk = 136.52 Fronds = 511.95 Shell=341.30
Sugarcane (2008)	0.400	2.46	Bagasse = 6.00 Field Trash = 522.61
Corn (2010)	2.500	6.38	Cobs=1.410 Stovers=9.80

Source: Philippine Agricultural Development and Commercial Corporation (PADCC)

4. Potential Future Challenges

1. Consolidation of lands, especially those to be used for agricultural production
2. Attracting investor-partners/finance partners
3. Improving productivity, cultivation and diversification of feedstock
4. Accelerating development of alternative feedstock including economics of production
5. R&D on second generation biofuels feedstock including economics of production
6. Village-level processing for bioenergy production
7. Developing cost-effective technologies, particularly on the processing side
8. Monitoring of quality, quantity and price; capability-building modules in plantation/plant management
9. Competing uses of feedstock

5. Lessons Learnt and Way Forward

- ✓ The continuous supply of feedstock must be ensured to gain long term benefits.
- ✓ The improvement of existing technology and innovations to provide efficient production of energy.
- ✓ The conduct of regional and national level assessments and feasibility studies on bioenergy (Life Cycle Assesment).
- ✓ The collaborative participation of private, government sectors and beneficiaries through symposiums and consultations with stakeholders.
- ✓ Expanding access to energy for the rural poor through community-based initiatives to generate power for household use.
- ✓ Scaling up of bioenergy production and strengthening of village scale models.
- ✓ Provide pro-investment fiscal and non-fiscal incentives.
- ✓ Technical standards must be in concesus with other countries standards.

5. Lessons Learnt and Way Forward

- ✓ Establish and strengthen linkages with the international community on bioenergy
- ✓ Resource inventory and establishment of RE database
- ✓ Capacity building / Information, Education and Communication Campaigns
- ✓ Investment missions / business meetings
- ✓ The most efficient way to hasten a rapid expansion of bioenergy production is for governments to encourage and support private sector investment in bioenergy sector development
- ✓ Regional Cooperation in Asia
  - ✓ Cooperation in international know-how exchange: exchange of bioenergy experts
  - ✓ Grants for R&D studies for bioenergy
  - ✓ Regular exchange of information between countries on the current innovations on bioenergy technologies

5. Lessons Learnt and Way Forward

- ✓ Regional Cooperation in Asia
  - ✓ Establish a website to serve as the bioenergy information exchange hub in Asia
  - ✓ Technology transfer on latest technologies on bioenergy production
  - ✓ Bioenergy resources and technology management, and strategy development
  - ✓ Bioenergy resource assessment and management
  - ✓ Service company management and training
  - ✓ Carbon financing and regional programs on CDM.
  - ✓ Strengthening R&D and demonstration

THANK YOU

The Philippine Agricultural Development and Commercial Corporation

PADCC Main Office:
1405 West Tower, Philippine Stock Exchange Center
Exchange Road Ortigas Center, Pasig City, 1605 Philippines
Tel. Nos. +63 2 635-9225 | +63 2 635-9229
Fax Number +63 2 637-3451

Philippine Agribusiness Center
First Floor, Department of Agriculture
Office of the Secretary Bldg., Elliptical Road, Diliman,
Quezon City, 1101 Philippines
Tel Nos. +63 2 928-8741 locals 2121, 2122,
2177 | +63 2 926-5446
Telefax +63 2 926-7976