

Business Plan: Renewable Energy Programs of Romblon Electric Cooperative, Inc.

Sustainable Energy for All Investor Forum
ADB Headquarters, Manila
16 June 2015



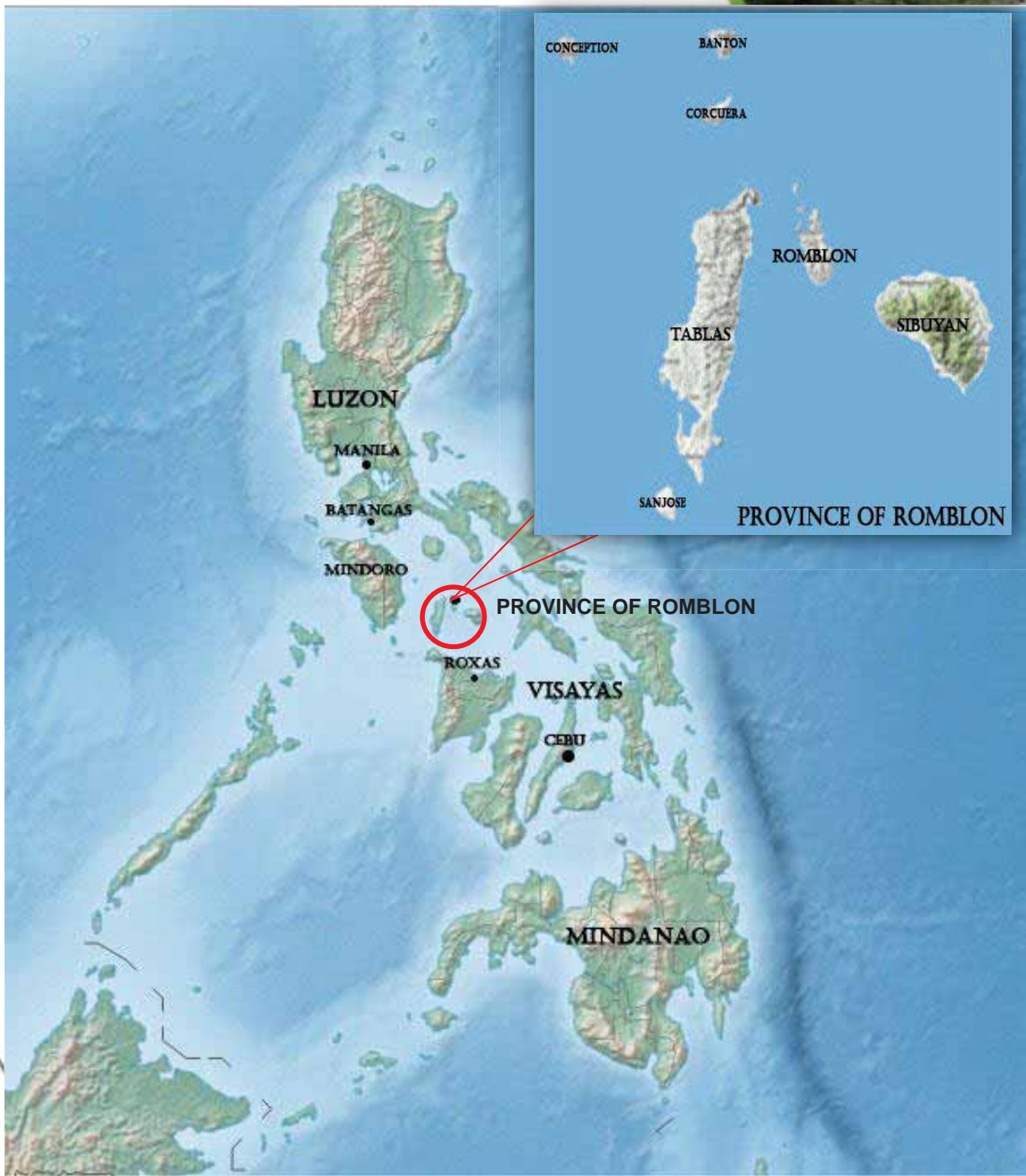
ROMBLON ELECTRIC COOPERATIVE, INC.
BRGY. CAPACLAN ROMBLON, ROMBLON

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90% / 10%





Romblon Electric Cooperative, Inc. (ROMELCO)

-Distribution Business

- ❑ Non-Stock, Non-Profit Electric Cooperative
- ❑ Registered with NEA, June 14, 1989
- ❑ Category, Medium EC
- ❑ Coverage Area – Four (4) Municipalities
- ❑ Six (6) Board of Directors
- ❑ 48 Personnel
- ❑ Member-Consumers/Household Connections – **21,080**
- ❑ Annual Sales in kWh (2014) – **12,546,539**
- ❑ Annual Revenue (2014) – **PhP132,573,126**
- ❑ Collection Efficiency (2014) – **96%**
- ❑ Systems Loss (2014) – **10.86%**

Cantingas Mini-Hydro Power Plant



Compelling Reasons – conceptualized to provide a 24-hour reliable, cost effective & environment friendly power supply to ROMELCO member-consumers in Sibuyan Island



Cantingas Mini-Hydro Power Plant

- Location – Brgy. Taclobo, San Fernando, Sibuyan Island, Romblon
- Designed Capacity – **1,350 kW**
- Commercially Operational – **900 kW**
- Capacity Factor (%) – **45% (Actual 67%)**
- Total Project Cost - **(PhP 140,928,420.04)**
- Construction Period – **3 ½ years**
- Date Completed/Initial Commissioning – **Dec.10, 2009**

MILESTONE

DATE	ACTIVITIES
1995	Conceptualized. Submitted request for assistance from NEA
1997	1st Business Meeting for the Development of Mini-Hydro, Focus on Cantingas Project
1997-2000	Conduct Hydrological Study
1999	Conduct of Pre-Feasibility Study
2000-2001	Conduct of Comprehensive Feasibility Study
2004	Mini-Hydro Operating Contract
	Joint Venture Agreement was signed between ROMELCO & VERGEL3 Consult (June 15, 2004)
	Financial Closing with DBP
2006	First Release of Loan
2006-2009	Construction Phase
Dec 2009	Commissioning Phase
Feb 2010	Commercial Operation
August 2014	Signing of CDM Emission Reductions Purchase Agreement First Release of 50% Cash Incentive Claim based on RA 9513

Challenges

- **Technical and Financial Capabilities**
- **Absence of Reliable Data of the River**
- **Issue on the Land Acquisition for the Power Plant and Access Road**
- **Issue on the Construction Method**
- **Scarcity of Local Contractors with Track Record for Mini-Hydro Construction**
- **Weather Condition**
- **Cost Escalation**
- **Late Approval of Tariff**

Solutions to Challenges

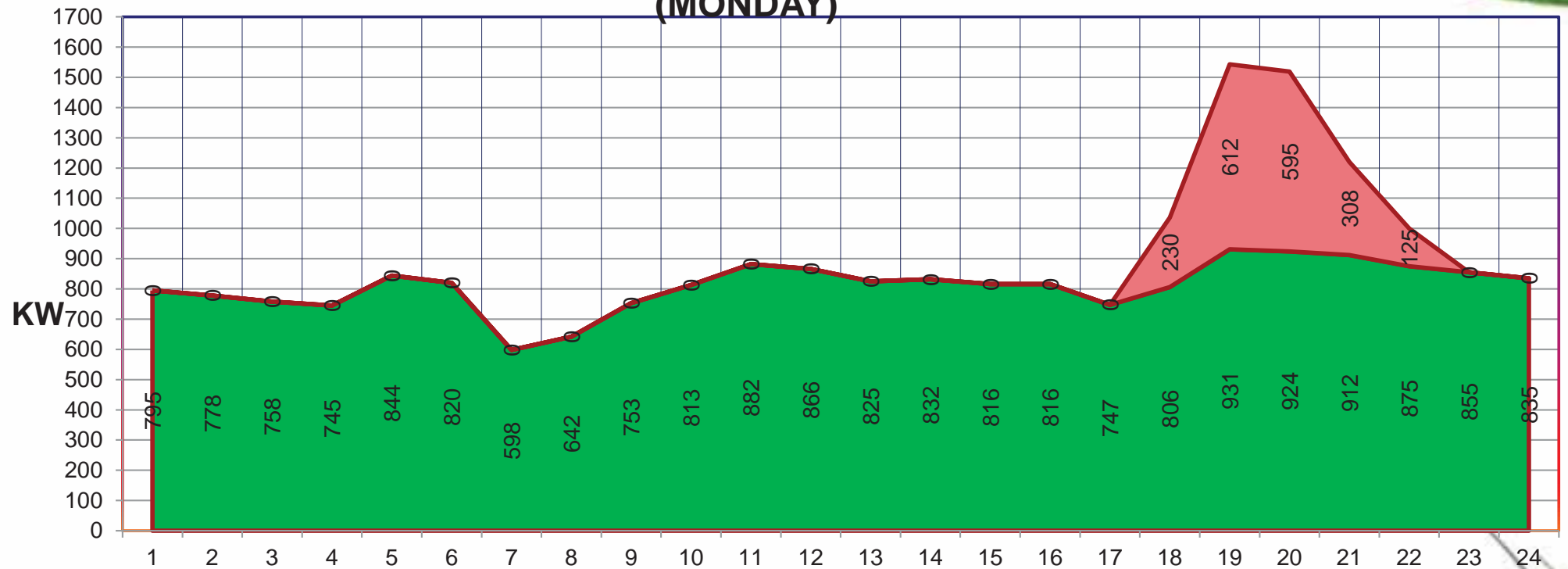


- Created a Subsidiary Corporation
 - Cantingas Mini-Hydro Power Corporation (Authorized Capital Stock PhP 85M)
 - Joint Venture between ROMELCO and Vergel3 Consults
 - Wholly owned Subsidiary Corporation of ROMELCO
- Hiring Experts, Consultant, etc.
- Avail loan from Development Bank of the Philippines (DBP) 90:10 (Debt-Equity)
- Filed Eminent Domain Case for Acquisition of Land for Power Plant
- Continuous Training of Personnel
- Filing Rate Recovery Case

HOW DO WE PERFORM?

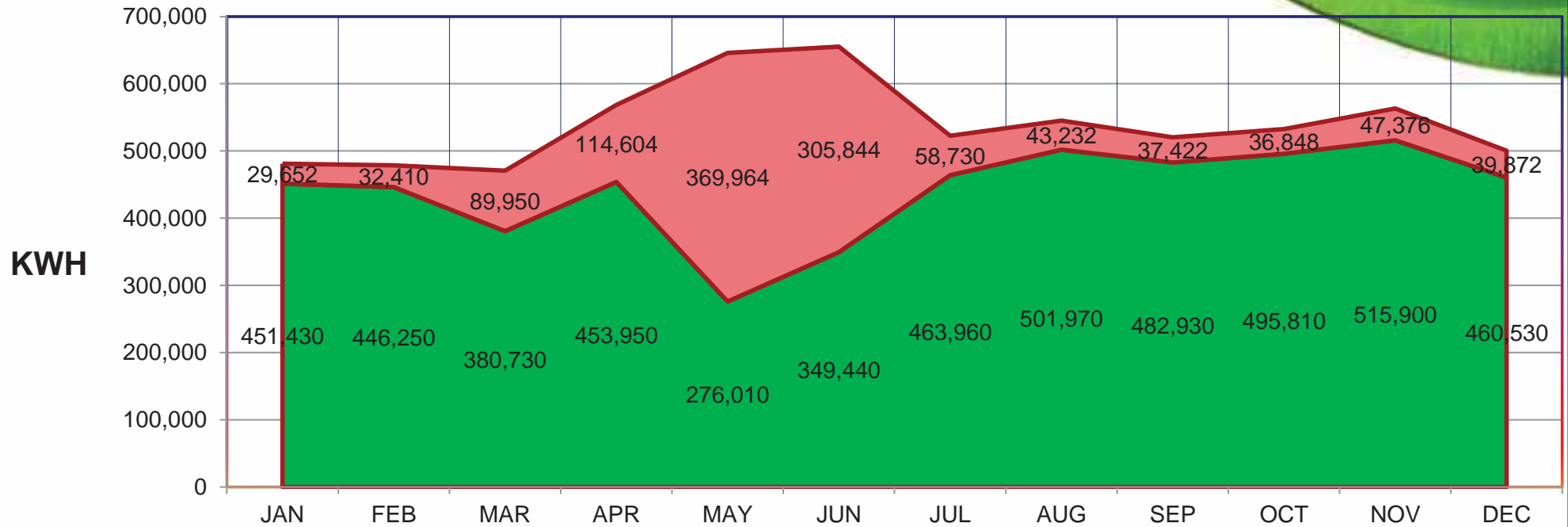
TYPICAL LOAD CURVE SIBUYAN ISLAND

AUGUST 11, 2014
(MONDAY)



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HYDRO	795	778	758	745	844	820	598	642	753	813	882	866	825	832	816	816	747	806	931	924	912	875	855	835
NPC																		230	612	595	308	125		
TOTAL	795	778	758	745	844	820	598	642	753	813	882	866	825	832	816	816	747	1,036	1,543	1,519	1,220	1,000	855	835

2014 KWH PURCHASED OF ROMELCO (Sibuyan Island)

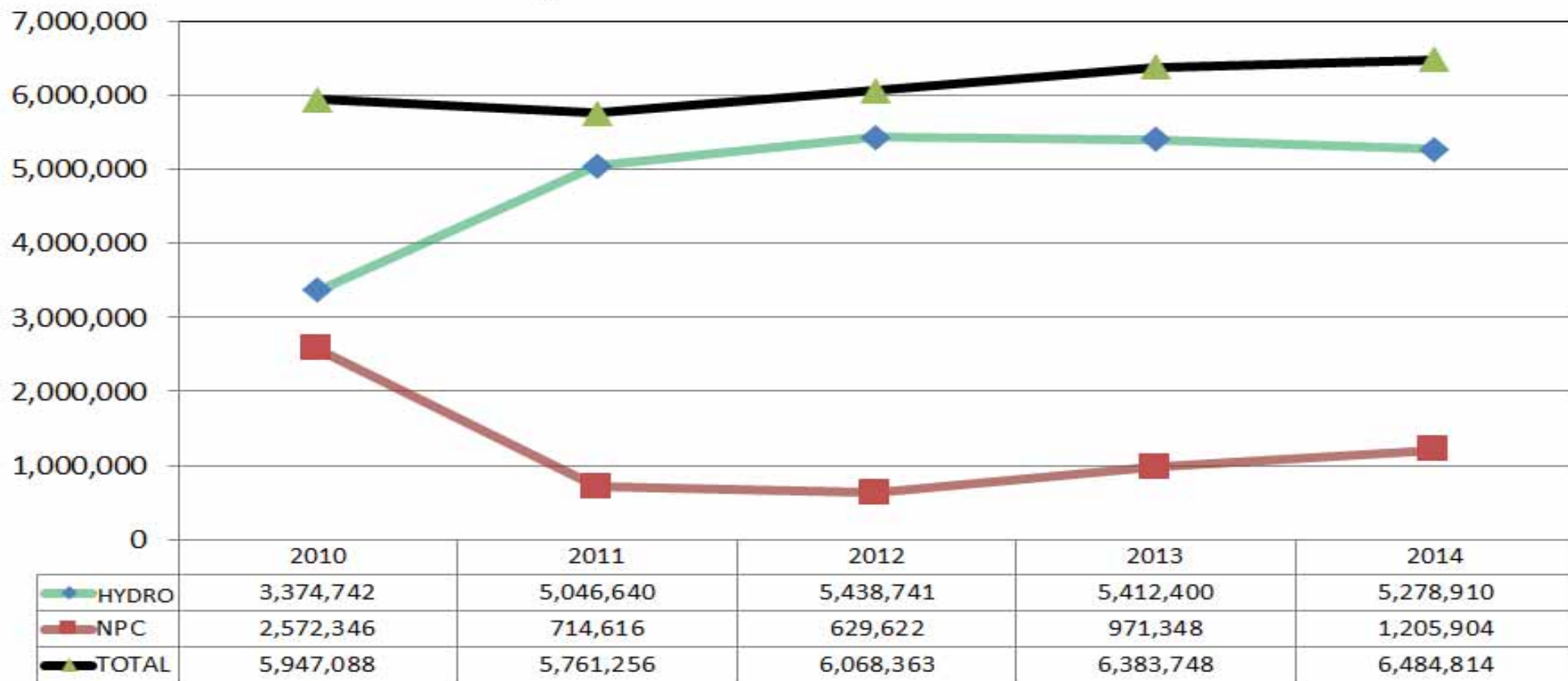


HYDRO	451,430	446,250	380,730	453,950	276,010	349,440	463,960	501,970	482,930	495,810	515,900	460,530
NPC	29,652	32,410	89,950	114,604	369,964	305,844	58,730	43,232	37,422	36,848	47,376	39,872
TOTAL	481,082	478,660	470,680	568,554	645,974	655,284	522,690	545,202	520,352	532,658	563,276	500,402

Total Percent Contribution	
HYDRO	81%
NPC	19%

LEGEND: ■ - HYDRO ■ - NPC-DIESEL P/P

KWH PURCHASED Sibuyan Island Year 2010-2014



SOURCE OF POWER	2010	2011	2012	2013	2014
HYDRO	56.7%	87.6%	89.6%	84.8%	81.4%
NPC-DIESEL P/P	43.3%	12.4%	10.4%	15.2%	18.6%

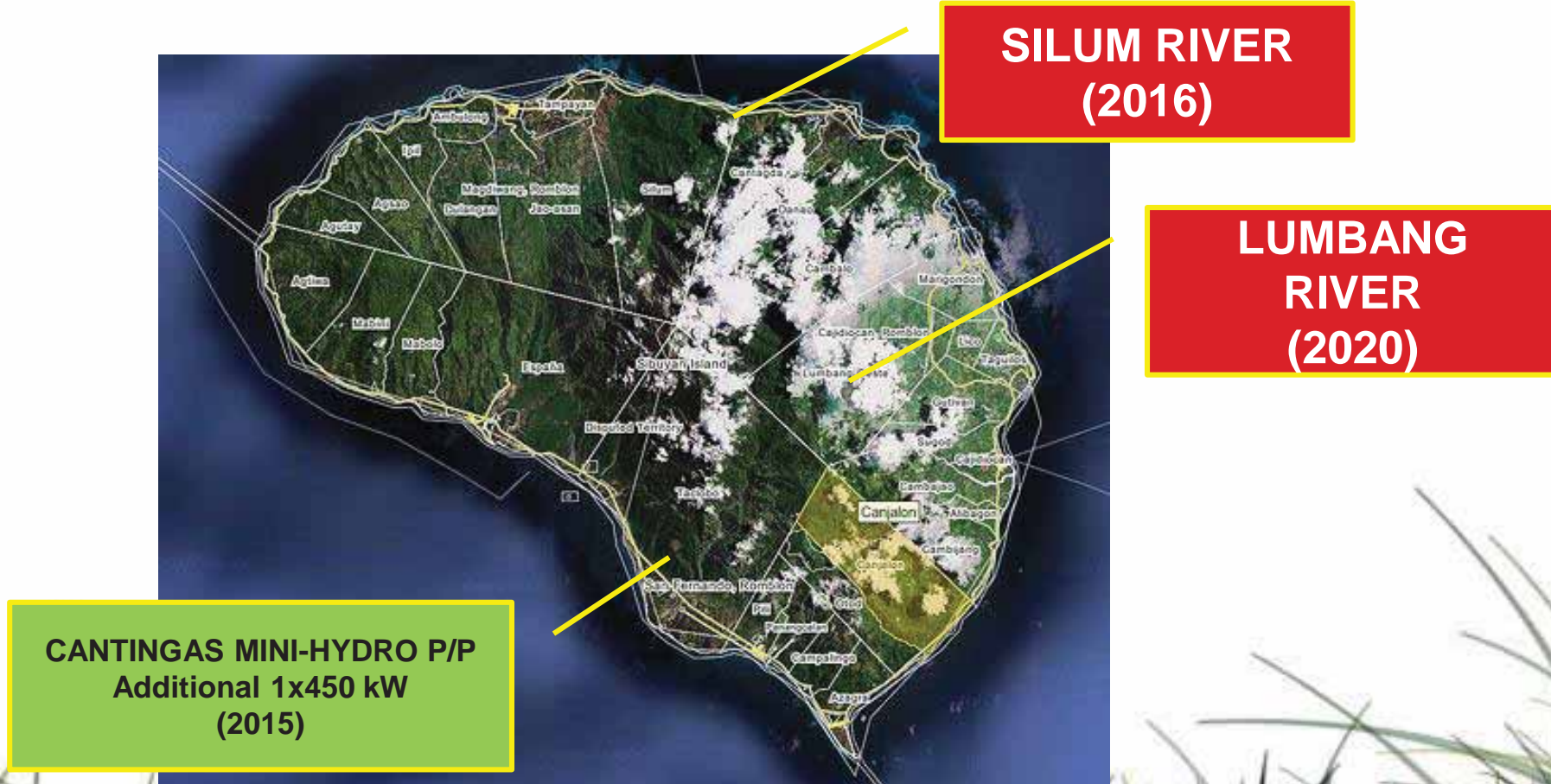
What are the benefits of the Mini-Hydro Power Plant?

- ROMELCO was able to provide a reliable 24-hour electric service to the member-consumers.
- Lowered the generation cost of electricity to PhP5.2107/kWh compared to the Subsidized Approved Generation Rate (SAGR) of PhP6.5896/kWh.
- PhP416,723,671.00, Avoided Cost/Savings to the Universal Charge for Missionary Electrification Subsidy (2010-2014).
- 7,312,202 liters of diesel fuel was saved (2010-2014)—approximately 1,462,440 liters per year.
- Avoided carbon dioxide emission by about 19,597 tons.

Development Programs

SIBUYAN ISLAND

- Installation of 1 X 450 kW Hydro Turbine (On-Going) PhP 25M
- 2 x 1,500 kw Mini Hydro in 2 different sites = Php 525M
- Battery Storage System – 1 MWHr (2016) – PhP 47M



Development Programs

3 ISLAND BARANGAYS

(current operation of ROMELCO-DPP, 8 hrs)

Cobrador Island

– 1 x 30 kW Solar-Diesel Battery Hybrid System – USD 405,700

Financial Analysis Results

COBRADOR

Investment Cost (USD)	405,700
Renewable Energy Fraction %	38%
Cost of Energy (U\$)	0.70
SAGR (U\$)	0.1464
Difference (to be subsidized from UCME)	0.5546
Total Cash Incentive (U\$)	375,560
Project IRR %	6.2%
Payback Period (Yr)	12.59



Development Programs

ROMBLON ISLAND

- 1 x 1,800 kw Biomass P/P using IFGT/EFGT Technology
- Nursery Development – February 2015
- 350 Hectares of Plantation

Economic and Financial Evaluation

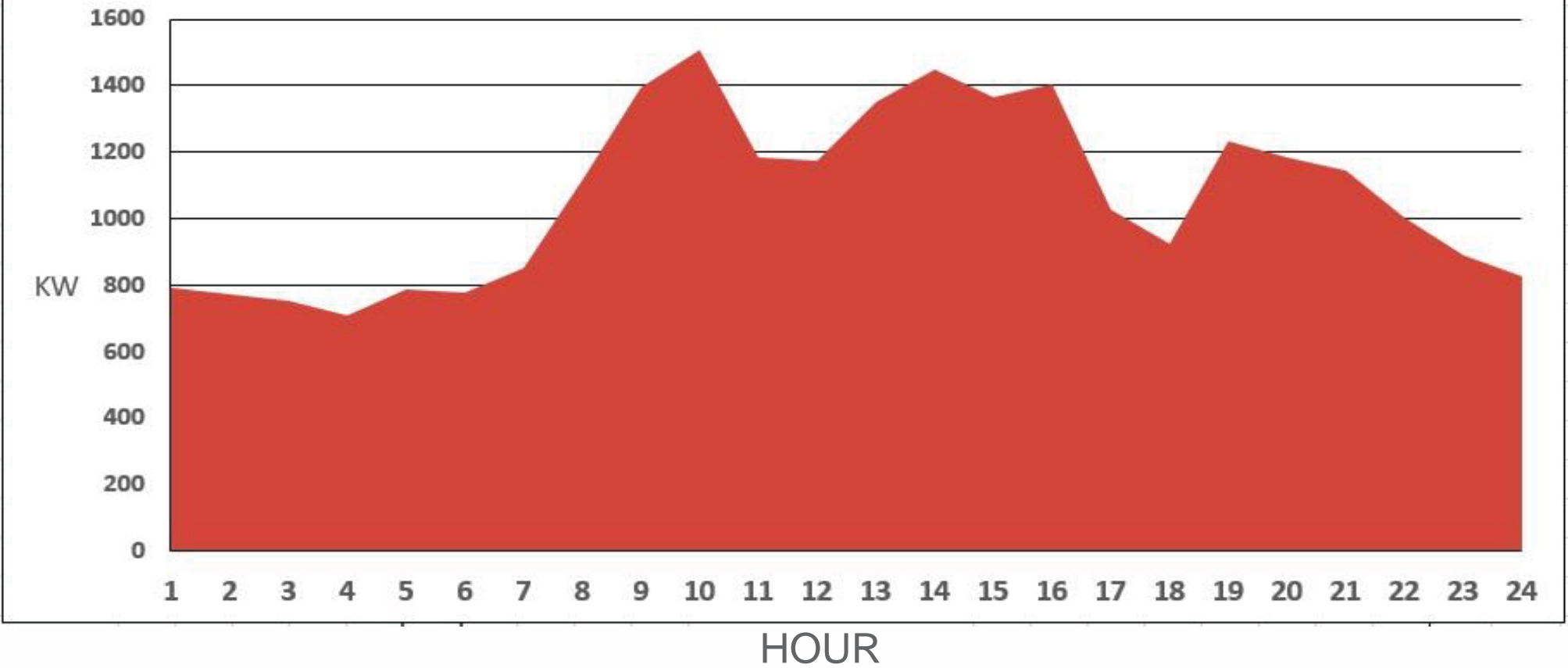
	PhP	USD
Investment Cost	317.5M	7.05M
Funding Program (Debt/Equity)		90-10
TCGR/kWh*	6.00	0.133
SAGR/kWh*	6.5896	0.146
Projected IRR (%)	17.0%	
Payback Period (Yr)	4 Years	

*TCGR – True Cost Generation Rate

*SAGR – Subsidized Approved Generation Rate



LOAD CURVE 2014
ROMBLON ISLAND



MONTH	H O U R																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
APRIL	790	771	755	711	788	778	853	1114	1393	1508	1183	1175	1348	1448	1365	1404	1025	922	1233	1184	1145	1002	891	825

Conclusions



1. 90/10 Renewable-Diesel Energy Mix is achievable by wisely choosing the right technology utilizing intelligent control system.
2. Renewable Technology can provide a long term and sustainable solution to the perennial power supply problem in the SPUG Areas or in Isolated Grids.
3. Renewable energy can reduce the cost of power generation in the isolated grids.
4. Power Generation can be a profitable business venture for ECs/Developers.
5. Renewable Energy can be a source of windfall income for the ECs/Developers in SPUG Areas.
6. Renewable Energy can help reduce carbon dioxide emission.
7. Partnership with Private Investment and Technology Provider can play a big role for a successful implementation of micro-grid projects in the isolated grids.

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