Proceedings World Geothermal Congress 2000
Kyushu - Tohoku, Japan, May 28 - June 10, 2000

SOCIAL DEVELOPMENT IN THE PHILIPPINES' TIWI GEOTHERMAL AREA

Melinda Camu[1] and Reynaldo Santiago[1]
[1,1]National Power Corporation – Tiwi Geothermal Power Plant Complex, Tiwi, Albay, Philippines

Key Words: development, regulations, benefits, Tiwi geothermal area

ABSTRACT

This paper shows the compensatory measures that facilitated Tiwi's social development. The Tiwi field is the first geothermal area in the Philippines to be commercially developed on a large-scale basis. The project started in 1972, prior to the onset of regulatory requirements on environmental and social aspects. Hence, due to the absence of such framework, the early years of geothermal exploration, development and operation were beset with problems. Community rallies and rift with the regulating agencies and the local government haunted the National Power Corporation (NPC) during its first 10 years of operation. Though NPC was government-owned and the geothermal resource was a timely answer to the country's oil crisis, the project lacked social acceptability.

Transition began when the Supreme Court awarded the Tiwi local government with NPC's payment of real estate taxes starting 1992. Likewise, by virtue of the Local Government Code of 1991, the Tiwi local government received national wealth tax from the company starting 1993. This provided for the 80% electricity subsidy subsequently enjoyed by the community. In 1994, the passing of the Energy Regulations No. 1-94 provided the host community and local government with a one-centavo share for every kilowatt-hour energy sales of the power plant. This was allocated for the funding of projects related to electrification, livelihood and development, reforestation, watershed management, health and/or environment enhancement. The creation of the Tiwi NPC-PGI Environmental SubCom in 1990 has likewise facilitated immediate action on the community's environmental concerns. Furthermore, a Memorandum of Agreement signed in 1998 created the Tiwi Geothermal Task Force and formalized the community's participation in the geothermal industry's affairs on environmental, health, safety and social aspects.

Though the transition came later, it proved the National Power Corporation's commitment to public service, with the allocation of benefits for Tiwi's social development. It also highlighted the importance of the government in the formulation of laws, regulations and policies to protect and promote the host community's interest and right to quality life.

1. INTRODUCTION

Geothermal projects are generally known for their environmental and social impacts in the area of operation. However, benefits from such projects are mostly discussed in terms of savings on oil imports and profit to the national economy. This paper, therefore, aims to bring the focus of measuring benefits to the impact area - where the socio-economic cost benefit analysis should begin.

Technology helps mitigate and control environmental impacts, yet, it is not sufficient to appease people for the disturbance created by the project. Investors and economists see geothermal development in terms of profit and progress. The locals see it as exploitation of their environment and threat to their livelihood and peaceful life. Community acceptance is a major challenge to any geothermal project. Hence, Tiwi's experience is worth sharing to other areas and countries with potential for, or ongoing geothermal resource development.

The Tiwi field is the first geothermal area in the Philippines to be commercially developed on a large-scale basis. It is located in the province of Albay, Bicol Region, about 185 aerial miles (300 kilometers) southeast of Manila (see Figure 1). This study used the qualitative research design in assessing social benefits in the area, and utilized data from the National Power Corporation, the Tiwi Local Government, the Albay Electric Cooperative, including reference materials from the Department of Energy and other publications.

1.1 Tiwi's History

In 1962, the Commission on Volcanology, with financial assistance from the National Science and Development Board conducted geothermal studies in Tiwi, Albay. The study discovered that an estimate of 500 – 800 megawatts potential could be harnessed from the geothermal resource to sustain power generation for around 35 years. Initial exploratory studies were carried on by the same agency from 1964 – 1971. In 1967, Republic Act No. 5092, also known as the Geothermal Law, was passed which provided the framework to promote and regulate the exploration, development and utilization of geothermal energy. In 1970, Presidential Proclamation No. 739 was promulgated declaring 17,661 hectares within the municipalities of Tiwi and Malinao as geothermal reservation. Tapping the geothermal resource was a timely alternative to the oil crisis experienced by the nation. In 1971, the Philippine government authorized the National Power Corporation, a government-owned utility corporation primarily responsible for power generation in the country, to enter into contract with the Philippine Geothermal, Inc. (PGI) for the commercial exploration and development of the steam field. In 1972, drilling activities began in Tiwi. This was the same year that Martial Law was declared in the country by then President Ferdinand Marcos. Between 1979 – 1982, three power plants with two 55-megawatt Toshiba turbine-generator units each were put up by NPC. Mitsui and Co., Ltd. of Japan was NPC's contractor for the electro-mechanical works while F.F. Cruz of the Philippines provided the civil and architectural works for the power plants.

1.2 The Concerns

The Tiwi Geothermal Power Plant Project started prior to the regulatory requirement on Environmental Impact Assessment. Binalla's study (1988) attributed the negative perceptions of the residents to pollution and ecological disturbance, NPC's exercise of the government's power of eminent domain or acquisition of private lands for public use, and the lack of benefits to compensate for the disturbance created by the project. The consumers' electric bills were costly, though the geothermal resource generating the electric power was only within the area. The place also lost its hot springs and the Naglagbong Park, a tourist attraction for its boiling pools, that was damaged in a hydrothermal eruption. Hence, community rallies and rift with the regulating agencies and the local government haunted NPC during its first 10 years of operation. Stoning of geothermal service vehicles became a regular occurrence that safety screens have to be put up for the riders' safety. Road barricades were common. Local leaders rallied their constituents against the perceived impacts of the ongoing development and operation. These perceived impacts included noise, roof corrosion, hydrogen sulfide, geothermal discharge, landslide and erosion, crop contamination and health concerns. Issues on company's employment and contractors' hiring system were also major concerns. The project lacked social acceptability, and throughout those early years of geothermal development and operation, Tiwi was a Class 4 municipality.

2. TIWI'S TRANSITION

The municipality's classification level is based on its average annual income. Tiwi Today (1997) newsletter reported that on May 9, 1997, the Department of Finance issued Memorandum Circular No. 97-365 citing Tiwi's rise from Class 4 to Class 1 municipality effective July 1, 1996. The reclassification was based on its 1992-1995 average annual income of about 40 million pesos. Table 1 shows Tiwi's income in comparison with the other municipalities in the province of Albay. Data show that besides having had the highest income among the municipalities, Tiwi also had the biggest jump in classification level. Tiwi's income for the period was almost twice that of Tabaco which used to be the most progressive municipality in the province.

From narrow, dusty roads and highways, the municipality has been transformed into a first class town. It now provides the comfort from concrete and paved roads, the convenience of telephone lines and computer internet, the luxury of cable television, the rise in market value of real estate and the benefit of streetlights at night. All of Tiwi's 25 barangays are beneficiaries to the 80% discount in their electricity bills, subsidized by the local government from the share in national wealth provided by NPC. Hence, from the cost of P4.54/kwh, a community consumer only pays P0.91/kwh. Commercial establishments get a lower discount of 30%, while the industries' electricity subsidy is 20%. Data from the electricity franchise distributor, Albay Electric Cooperative, showed Tiwi's total electricity consumption of 2,758,242 kilowatt-hours from June – December 1998, costing P12,522,259.70, but of which the amount of P9,835,583.98 was subsidized.

In response to the environmental concerns, the NPC-PGI Environmental SubCom was organized in 1990 to provide priority action on the environmental complaints. Procedures and timetable for the inspection, investigation and assessment of claims for crop damage and alleged impact were established. This included coordination with third party agencies like the Fiber and Development Authority and the Municipal Agricultural Office. In 1993, the Geothermal Advisory and Service Council was organized to serve as a regional advisory board for an environmentally, socially, occupationally compatible harnessing of geothermal energy. This composed of representatives from the Department of Energy, the provincial and municipal government units and the regulating agencies in the Bicol Region. In 1998, the Tiwi Geothermal Task Force was created through a Memorandum of Agreement to open the community's participation in the environmental, social, health and safety monitoring of geothermal operation in Tiwi. In 1994, the Department of Environment and Natural Resources installed a continuous air quality monitoring station in the area. The agency executed a subsequent agreement with NPC, PGI and the Tiwi local government to support its maintenance and operation.

The geothermal plants' effluent and brine discharges from production wells were disposed back to the injection wells. Cooling tower sludge and laboratory waste were also injected back to the wells. The power plants were installed with exhaust stack silencers to mitigate the noise. A rehabilitation project is underway to optimize the power plants' performance and upgrade the mechanical gas extraction system to improve on noise mitigation and non-condensable gas emission levels. A land use project in agreement with the local government's development plans for tourism and Economic Zone for industries is also being undertaken to further boost Tiwi's progress.

NPC's social contributions greatly helped Tiwi's transition from a Class 4 to Class 1 municipality. These came from the share in national wealth, the real estate tax payments and the Energy Regulations No. 1-94 benefits.

2.1 The Share in National Wealth

The national wealth refers to all natural resources situated within the Philippines territorial jurisdiction including lands of public domain, water, minerals, coal, petroleum, minerals, potential energy source, gas and oil deposits, forest products, wildlife, flora and fauna, fishery and aquatic resources and all quarry products. The national wealth tax is any levy, royalty, fee or charge derived from the development and utilization of the national wealth. The host LGU refers to the local government unit (barangay, municipality, city or province) where the facility extracting national wealth is located. For geothermal, the host LGU is the area where the producing geothermal reservoir is located as delineated by detailed geochemical, geophysical, and exploration surveys. The barangays are smaller local government units comprising the municipality.

NPC started paying the national wealth tax (which is 1% of the gross sales or receipts) to the host LGU in 1993, consistent with the provisions of Republic Act 7160 also known as the Local Government Code of 1991. The Code provides for the local government Subsequent guidelines were issued jointly by the Department of Interior and Local Government and the Department of Energy. The Joint Circular No. 95-01 in 1995 provided for the utilization of

80% of the proceeds from the national wealth tax to be applied solely for the lowering of the cost of electricity in the LGU where the source of energy is located. The remaining 20% is used to finance local development and livelihood projects. Joint Circular No. 98-01 in 1998 provided for additional guidelines on the allocation of LGU shares. When the resource is located in 2 or more barangays, or municipalities, or provinces, the respective shares are computed on the basis of population (70%) and land area (30%). Table 2 shows the amount of national wealth tax paid by NPC. Of the total amount, 20% goes to the Albay province, 45% goes to Tiwi municipality, and 35% goes to the 16 host barangays. A total amount of P202,305,422.57 has been remitted by NPC from 1993 up to the first quarter of 1999.

Funded projects from this source included the municipal gymnasium, concrete barangay roads, concrete drainage canals, health centers, public market, irrigation system, barangay multipurpose halls and daycare centers, renovation of the municipal town hall and other infrastructures. It also provided for the acquisition of the municipal shuttle bus, barangay officials' handheld radios and motorized tricycles.

2.2 NPC's Real Estate Tax Payments

Out of the 17,661 hectares geothermal reservation, the developed steam field is around 1,800 hectares of which more than 600 hectares was acquired by NPC. The steam field is therefore interspersed with private properties.

NPC used to be exempted from paying real estate taxes for its acquired lands, but this was changed by a Supreme Court ruling awarding the case in favor of the local government. Table 3 shows that from 1992 up to the first quarter of 1999, NPC has paid the Tiwi municipality the total amount of P17,933,701.40 in real estate taxes. The taxes remitted are based on the prevailing assessed value for special property, of which 1% is paid for the Basic Tax and 1% for the Special Education Fund.

NPC's contributions helped in the acquisition of the school van, implement school renovations, install campus potable water system and other school improvements.

2.3 The Energy Regulations No. 1-94

Section 5(I) of Republic Act No. 7638 also known as the Department of Energy Act of 1992 provides that the Department shall devise ways and means of giving direct benefits to the province, city, or municipality, especially the community and people affected, and equitable preferential benefit to the region that hosts the energy resource and/or energy-generating facility. Provided, however, that the other provinces, cities, municipalities, or regions shall not be deprived of their energy requirements. Thus, on May 24, 1994, the Energy Regulations No. 1-94 (E.R. 1-94) was promulgated by the Department of Energy and this took effect on June 27, 1994. This was followed by Department Circular No. 95-11-009 on November 8, 1995 and Department Circular No. 96-08-009 on August 9, 1996 to amend / provide guidelines on the grant of benefits under E.R. 1-94.

There are monetary and non-monetary benefits provided by E.R. 1-94. Under the monetary benefits, a total of one-centavo per kilowatt-hour of total electricity sales of the power plant is provided to the host LGU to fund projects approved by the Department of Energy. These monetary benefits are broken down as follows: (1) Electrification Fund – ¼ of 1 centavo or P0.0025 per kilowatt-hour electricity sales; (2) Development and Livelihood Fund – ¼ of 1 centavo or P0.0025 per kilowatt-hour electricity sales; (3) Reforestation, Watershed Management, Health and/or Environment Enhancement Fund – ½ of 1 centavo or P0.0050 per kilowatt-hour electricity sales.

The non-monetary benefits include: (1) prioritization of load dispatch; (2) skills development; (3) preference in employment; and (4) preference in procurement of local supplies and services.

The 80% of the Electrification Fund shall be applied for missionary electrification and 20% for repairs and maintenance of substations and distribution lines. This is applied in the order of radiating benefit, with the official resettlement or relocation sites of the community and people affected coming first, followed by the host barangay, then the host municipality or city, the host province and the host region.

The Development and Livelihood Fund is applied in an equitable preferential manner to the exclusive benefit of the community and people affected, the host LGU or region in the following proportions: 5%, Official resettlement or relocation site of the community and people affected; 15%, Host Barangay; 25%, Host Municipality/City; 25%, Host Province; and 30%, Host Region.

The Development and Livelihood Fund is held in trust by the power producer and energy resource developer, and the interests earned accrue to the beneficiaries cited above. The development projects may include improvement of feeder roads, riprapping of canal / river banks, flood control system, construction / repair of drainage canal / culvert, construction / repair of barangay markets, deepwells and irrigation system. Livelihood projects may include key commercial crops program, grains production enhancement program, livestock development program, fisheries management and development, cooperative store, purchase of farm equipment and machinery.

The Reforestation, Watershed Management, Health and/or Environment Enhancement Fund follows the radiating order of benefit with the official resettlement site coming first, followed by host barangay, host municipality / city, host province and host region. Project proposals may include barangay health centers, communal toilets, water supply system, erosion control structures, community-based forest management, reforestation of degraded forest, rehabilitation of watersheds, soil fertility conservation and enhancement, community waste disposal management and other related projects endorsed by the Department of Environment and Natural Resources or the watershed reservation manager designated by law for the area.

The Department of Energy – Financial Management Services administers all electrification funds, all funds accruing from the operation of energy-generating facilities owned or operated by private entities, as well as all funds accruing from those covered by the steam/brine sales contracts or power

purchase agreement between NPC and the PNOC – Energy Development Corporation. NPC administers the Development and Livelihood Fund and the Reforestation, Watershed Management, Health and/or Environment Enhancement Fund accruing from NPC-owned and/or operated energy-generating projects / facilities, as in the case of Tiwi. The Department of Energy – Financial Management Services undertakes a review and audit on sources and uses of funds at the end of every semester. The process of availing of the Electrification Fund is shown in Figure 2. The host LGU (Tiwi) endorses the project through municipal council resolution and submits the proposal together with the other supporting documents to the power producer and/or energy resource developer (NPC). The company coordinates with the franchise holder (Albay Electric Cooperative) and transmits the documents to the National Electrification Administration for review, prior to endorsement to the Department of Energy – Energy Industry Administration Bureau for project implementation and fund disbursement. A Memorandum of Agreement is signed among the Department of Energy, the National Electrification Administration and the Local Government Unit.

The process of availing of the Development and Livelihood Fund and the Reforestation, Watershed Management, Health and/or Environment Enhancement Fund is shown in Figure 3. The host LGU (Tiwi) endorses the project through a municipal council resolution, submits the proposal and required documents to NPC which in turn submits them to the Department of Energy for evaluation and approval. The Department issues a Notice to Proceed to the LGU through NPC, and a Memorandum of Agreement is signed between NPC and Tiwi LGU. In other areas where the power producer is a private entity, or the resource developer is the PNOC – Energy Development Corporation, the Agreement is signed between the Department of Energy and the host LGU.

Projects proposed for funding should show the potential for enhancing progress, the provision of decent source of livelihood or the improvement of the community's general condition of living.

In times of energy shortage, NPC shall prioritize up to 25% of its contracted or available capacity which shall be delivered to the appropriate electric utility (Albay Electric Cooperative, in this case) for distribution to the community beneficiaries according to the order of radiating benefit. The remaining 75% shall be dispatched to the grid so as not to deprive other areas of their energy requirements.

Out of the 25 Tiwi barangays, the geothermal reservoir and facilities are spread out in 16 barangays. These are the host barangays which are direct beneficiaries in the E.R. 1-94. From June 1994 to September 1998, the accrued financial benefits are shown in Table 4. The Electrification Fund and the Development and Livelihood Fund amount to P16,184,737.75 each, while the Reforestation, Watershed Management, Health and/or Environment Enhancement Fund amounts to P32,369,475.50. The total financial benefits sum up to P64,738,951.12.

Completed projects in Tiwi include the electrification of Barangays Lourdes, Biyong and San Bernardo; purchase of kilowatt-hour meters and service drop wires for the Tiwi barangays; street lighting of the municipal road, 17 barangays, and rehabilitation of the barangay road street lights; water system rehabilitation in Barangay Bolo; and rehabilitation of main dyke and support structures, soil erosion and siltation control, stream bank stabilization and 50 hectares bamboo reforestation in Barangay Joroan.

New approved projects include the Tiwi Potable Water System costing around P18,000,000.00 and the Electrification of 15 Tiwi Sitios / Barangays costing around P5,838,780.00. Additional project proposals are Barangay Libtong Health Center Construction, Rehabilitation of Typhoon Damaged Streetlights, Barangay Oyama Flood Control System. The neighbouring municipality of Malinao had likewise been a beneficiary of the E.R. 1-94 benefits on electrification and potable water system projects. As of December 31, 1998 the obligated benefits amount to P17,409,133.87 .

Furthermore, Tiwi provides the 85% and the largest slice in NPC's hiring of casual skilled and non-skilled laborers. NPC's regular employees are also mostly from Tiwi, with 46% Tiwinons out of NPC's 204, followed by 21% from the other places in the province. Likewise, NPC's contractors are obliged to get majority of their manpower for contracted jobs within the municipality in accordance with E.R. 1-94. More so, NPC accepts technical students rendering on-the-job training in the power plants for skills development.

2.4 Other Contributions To Social Development

The Philippine Geothermal, Inc., on its part, has similarly contributed to the improvement of the people's life in Tiwi. Its annual scholarship program funding a total of 25 college students and 40 high school students from indigent families helped promote education and the turnout of professionals in the area. Medical assistance is also a regular program of the company, with the provision of medicines and hospitalization assistance to poor community members. Cattle dispersal program, along with NPC's swine dispersal program, was initiated to add to the people's livelihood. Community training and skills development programs were supported by the company, like the Mothers' Class to promote awareness on health and nutrition, and the emergency and disaster preparedness plan to develop a responsive community team. PGI has also initiated steps for the restoration of the Naglagbong Park, to bring back Tiwi's cultural heritage and help promote tourism.

NPC has an annual program extending free medical and dental services to the needy through its medical and dental team. Its watershed management group helps educate the upland dwellers on the importance of forest protection and conservation. Regular film showing on poultry and hog raising, backyard farming and other livelihood opportunities are conducted to add to the people's knowledge. The Tiwi Geothermal Task Force composed of various agencies and community members was formed with the geothermal industry to ensure public health and safety. An outreach program to schools is part of the company's thrust to help promote awareness on geothermal operation and environmental safety in the Tiwi geothermal area.

Both NPC and PGI are now regularly represented in community affairs and celebrations, programs and activities, thereby gradually transforming the geothermal industry's image from an intruder to that of a community partner. More so, because of the electricity subsidy, Tiwi has become an

attractive site for prospective investments. The Tiwi municipality has plans for developing a 150-hectare Economic Zone (1999-2005) for industries in the area. This will bring additional electricity customer for the power plants, additional employment opportunities for the residents and additional business opportunities for the enterprising locals.

2. CONCLUSION

There will always be two sides to progress – the benefits and
the drawbacks. The social change however becomes attractive when the advantages far outweigh the disadvantages, and when such change brings about more opportunities for the poor to make a better life, with due consideration for the resource and the environment. In Tiwi, technology and corporate plans answered the environmental concerns. The geothermal industry's social contributions and the local government plans and programs responded to the social concerns. There is though a greater challenge to go farther than building infrastructures towards that of building people – making available more livelihood opportunities, and promoting the development of greater skills and more professionals. The E.R. 1-94 is in the process of revision. Tiwi hopes that the bigger slice will be allocated to Development and Livelihood over the other funds.

Furthermore, consistent with the country's thrust for the sustainable harnessing of geothermal energy to promote the national economy, it can be said that (1) the National Power Corporation has largely contributed to Tiwi's social development; (2) the government's formulation of laws, regulations and policies played a key role in protecting and promoting the people's quality life; and (3) the Tiwi community will continue to reap the benefits from the development of its geothermal resource as long as NPC power plants continue to operate and generate electricity.

4. ACKNOWLEDGEMENTS

The authors are indebted to NPC management and finance group, the Tiwi Municipal Mayor and personnel, the Tiwi barangay officials, Albay Electric Cooperative, Philippine Geothermal, Inc., Department of Energy, and to NPC Tiwi Geothermal Power Plant Complex co-employees.

Figure 1. Map of the Philippines and Tiwi Location

5. REFERENCES

(Thesis)
Binalla, N.B., (1988). *The Effects of Geothermal Power Plant Project in Tiwi, Albay.* Thesis presented to Aquinas University Graduate School Faculty, Legazpi City, Philippines. 107pp.

(Chapter in a book)
De Jesus, A.C., (1995). Socio-economic impacts of geothermal development. In: *Environmental Aspects of Geothermal Development,* K.L. Brown (Convener)., C.4, International Geothermal Association Inc., Auckland, New Zealand, pp. 57-78.

(Handbook)
Department of Energy (1998). *Primer on Benefits to Local Government Units Hosting Energy Resources and/or Energy-Generating Facilities.* Manila, Philippines. 24pp.

(Brochure)
National Power Corporation – Tiwi Geothermal Power Plant, (1997). *History of the Geothermal Development in Tiwi.* Tiwi, Albay, Philippines. 10pp.

(Chapter in a book)
Nolledo, J.N., (1992). Share of Local Government Units in National Wealth. In: *The Local Government Code of 1991 Annotated.* Caloocan City, Manila, Philippines. Pp. 364-368.

(Newsletter)
Philippine Geothermal, Inc., (1997). *Tiwi Today,* Vol. 1, Issue 3, Tiwi, Albay, Philippines. 8pp.

Table 1. Reclassification Level of Municipalities of Albay Province Effective July 1, 1996

Municipalities	Average Annual Income (1992 – 1995, in Pesos)	Class From	Class To
1. Bacacay	P 11,269,281.39	4	4
2. Camalig	12,074,284.47	4	3
3. Daraga	23,256,457.87	3	1
4. Guinobatan	16,128,070.83	4	2
5. Jovellar	5,975,756.28	5	5
6. Libon	13,551,122.33	4	3
7. Ligao	18,230,909.13	3	2
8. Malilipot	6,695,637.32	5	5
9. Malinao	8,702,922.82	5	4
10. Manito	6,170,833.48	5	5
11. Oas	13,992,328.19	4	3
12. Pio Duran	10,225,307.92	4	4
13. Polangui	17,398,223.88	3	2
14. Rapu-Rapu	8,040,082.12	5	4
15. Sto. Domingo	7,936,950.33	5	5
16. Tabaco	23,697,476.75	2	1
17. Tiwi	40,231,233.85	4	1

Table 2. Taxes on Share in the National Wealth, NPC Tiwi Geothermal Power Plant, 1993 – 1999*

Year	Barangays	Tiwi Municipality	Albay
1993	P 10,827,500.30	P 13,921,072.10	P 6,187,143.10
1994	11,745,812.00	15,101,759.00	6,711,893.00
1995	12,480,439.00	16,046,279.00	7,131,679.00
1996	10,205,023.00	13,120,746.00	5,831,442.00
1997	10,488,073.00	13,484,665.00	5,993,184.00
1998	12,256,704.00	15,758,620.00	7,003,831.00
1999*	2,803,345.00	3,604,301.00	1,601,912.00
Total	P70,806,896.37	P 91,037,442.10	P 40,461,084.10

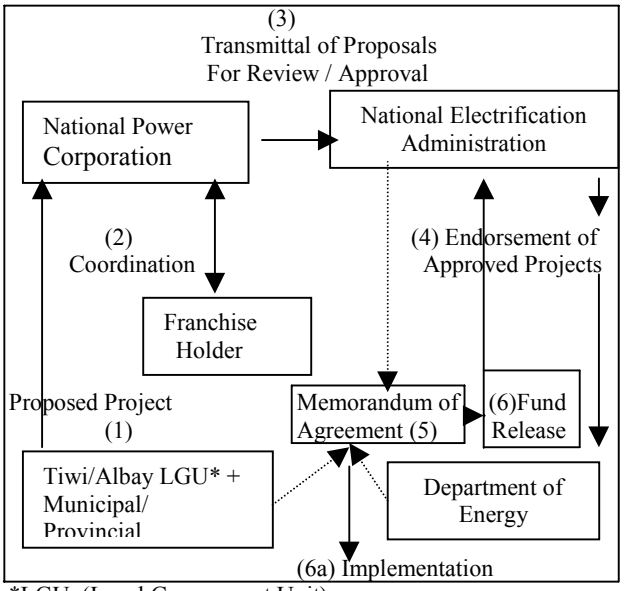
Grand Total : P202,305,422.57

* First Quarter

Table 3. Real Property Tax Payments to Tiwi Municipality NPC Tiwi Geothermal Power Plant, 1992-1999*

Year	Amount
1992	P2,138,561.96
1993	1,947,036.31
1994	2,696,416.80
1995	2,696,270.04
1996	2,749,133.16
1997	2,524,314.20
1998	2,531,957.20
1999*	650,011.73
Total	P17,933,701.40

* First Quarter



*LGU (Local Government Unit)

Figure 2. Process of Availment of the Electrification Fund

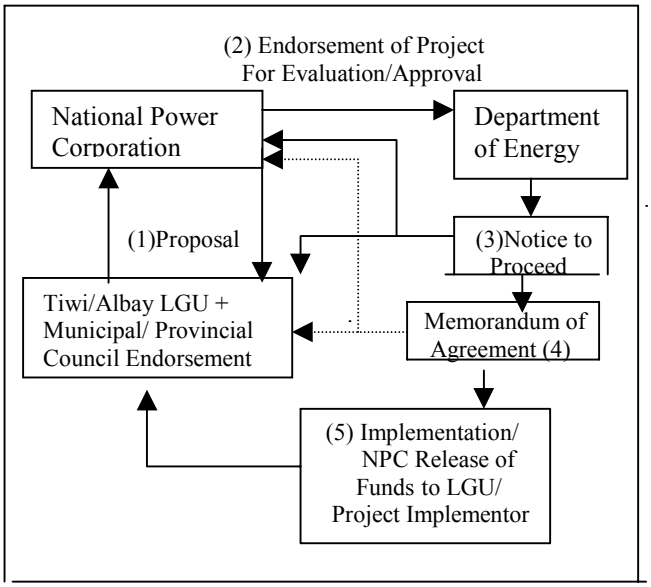


Figure 3. Process of Availment of Development and Livelihood Fund, and Reforestation, Watershed Management, Health and / or Environment Enhancement Fund

Table 4. Energy Regulations No. 1-94 Financial Benefits Accrued From June 1994 to September 1998

Fund	16 Host Barangays	Tiwi Municipality	Albay Province	Region 5	Total
Electrification	P 16,184,737.75*	*	*	*	P 16,184,737.75
Development,	P 3,236,947.55	P 4,046,184.44	P 4,046,184.44	P 4,855,421.33	P 16,184,737.75
Reforestation,	P 32,369,475.50*	*	*	*	P 32,369,475.50

* Priority is in the order of radiating distance from the power plants / geothermal facilities.