UNDERGROUNDING PUBLIC UTILITY LINES

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FOREWORD

This report was written in response to the request by Senate Concurrent Resolution No. 30, S.D. 1, adopted by the Twentieth Legislature, Regular Session 1999, entitled "Requesting the Legislative Reference Bureau to Conduct a Policy and Issue Study Concerning the Undergrounding of Overhead Utility Facilities."

The Bureau acknowledges the assistance received from many interested parties including the utilities, the not-for-profit entities, the community members, the public utilities commission, the office of the consumer advocate and other government agencies. The information and insight from all those who contributed was invaluable to the Bureau in obtaining a full picture of such a complicated topic in a short period of time.

The goal of this report is to provide a resource for the Legislature to understand the policies and issues concerning the undergrounding of overhead utility facilities and recommend actions that they may take to move in the direction of their choosing. With that end in mind, this report stands as a starting point for general understanding and informed discussion on the policies and issues of undergrounding overhead utility lines. The suggested legislation presented offers different approaches to pursuing undergrounding of overhead utility lines.

Wendell K. Kimura
Acting Director

December 1999

FACT SHEET

Undergrounding Public Utility Lines

I. Executive Summary

This report examines the policies and issues of undergrounding public utility lines. The policies and issues discussed in Chapter 2 have been categorized into seven topics: (1) type of line; (2) location; (3) benefits of undergrounding; (4) costs; (5) public sentiment; (6) technological issues; and (7) legal matters. The discussions within each topic address related issues and refer to assorted documents that may be of interest in those particular areas. Chapter 3 of this report reviews the treatment of undergrounding in other jurisdictions. Finally, Chapter 4 discusses the theory and process of public utility actions and suggests alternatives to address some of the problematic issues identified in Chapter 2. Legislation is included in the appendices for all suggestions.

While all of the issues discussed are relevant, the issues of benefits and cost have the most significance with regard to requirements of the current law in evaluating whether or not electrical lines should be underground in section 269-27.6, Hawaii Revised Statutes. The structure of the law requires a balancing of benefits and costs but without a standard to measure benefits, it is almost impossible to accurately compare these issues. The study suggests that the Consumer Advocate should be provided with the tools to measure benefits that include the valuation of certain intangibles. This measurement of externalities is necessary to complete the current analysis required under the law. Costs are considered from the perspectives of consumers, the utilities, and government. The study also looks at cooperative funding from all entities.

Regarding plans for the conversion of overhead lines to underground, this report focuses on the solutions presented by the California Public Utility Commission. The California PUC has actively pursued the conversion of overhead utility lines to underground for thirty years by establishing guidelines for counties and requiring utilities to participate by allocating as much as two percent of a utility's gross revenues to undergrounding. Counties and consumers are expected to share costs according to locations and criteria set by both the California PUC and counties.

The final analysis of the issues highlights the need to develop the measurement of intangibles; create independent review throughout the process in order to reduce built-in bias; establish clearer communication lines between consumers and PUC operations; promote quality consumer participation in the process; encourage settlement through alternative dispute resolution; and provide for safety through the establishment of a one-call system.

II. Frequently Asked Questions.

A. Is this a comprehensive report?

No. The topic would require volumes to address the quantity of issues and information available. This report attempts to cull the highlights of certain programs and provide resources to pursue specific points not fully covered.

B. Could the PUC accomplish much of this without legislation?

Yes. The Bureau believes that the PUC has the authority to accomplish many of these tasks without further legislation, which is why much of the proposed legislation is more policy driven without specific requirements. Legislation in this State may be needed to provide the appropriate guidance the PUC needs in establishing some of the suggested programs and adjustments.

C. How is the EMF issue handled?

This report discusses the EMF issue under the Benefits category in Chapter 2. No standards have been adopted by any federal or Hawaii state officials. Accordingly, the Bureau has deferred recommendations on this issue to the Department of Health.

D. What is the one-call system?

"One-call systems" are programs authorized by state governments that require utilities to identify where their underground facilities are located so that excavators are notified and the facilities are not accidentally disturbed or damaged. A one-call system is designed to protect excavators from injury, curtail accidental outages of service, and save costs for repair. Many states participate in one-call systems and a full study could be conducted on the different attributes of each. The essential elements include requirements for: (1) utilities to participate, and (2) excavators to call the one-call program before they dig. Many programs also include penalties to those who fail to call ahead and cause damage.

TABLE OF CONTENTS

Figures

Tables

Appendices

Chapter 1

INTRODUCTION

The Legislature, through Senate Concurrent Resolution No. 30, S.D. 1, adopted during the 1999 Regular Session, asked the Legislative Reference Bureau to study the policies and issues on the undergrounding of public utilities (see Appendix A). This report identifies the policies and issues of undergrounding utilities, looks at other jurisdictions, and reviews alternative processes for collecting information and addressing the fundamental issues involved in evaluating whether undergrounding of existing and proposed overhead utility facilities should be required, and if so, under what conditions.

Background

The debate on undergrounding public utility wires reflects the inherent conflict that exists in any regulated utility controversy. Balancing the interests of the public, the utility, the stockholders, and the consumers necessarily requires constant adjustment to meet the changing needs and interests of the parties involved. A good discussion of these regulatory matters can be found in a 1961 publication of the Legislative Reference Bureau, The Hawaii Public Utilities Commission.[1] The burden of this delicate balancing act has been the responsibility of the Public Utilities Commission (hereafter "PUC") since 1913.[2]

The PUC, established in Chapter 269 of the Hawaii Revised Statutes, is an appointed three-person panel whose general powers and duties are to supervise all public utilities.[3] This report focuses only on the utilities regulated by the PUC that transport power and telecommunications over wires, electricity and telephone and to the extent the cable industry is subject to the right-of-way and construction requirements of the PUC.[4] Following the developments in the law regulating the construction of utility lines is an important step in understanding the current situation.

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[1] Dinell, Tom. *The Hawaii Public Utilities Commission*, State of Hawaii, Legislative Reference Bureau, 1961, Report No. 6.

[2] Act 89, Session Laws of the Territory of Hawaii 1913.

[3] Section 269-6, Hawaii Revised Statutes.

[4] The cable industry, regulated by the Department of Commerce and Consumer Affairs under Chapter 440G, Hawaii Revised Statutes, is required to comply with all PUC statutes, rules and orders applicable to the construction, maintenance, and removal of overhead and underground facilities See section 440G-8.2(h), Hawaii Revised Statutes (1993).

The first appearance in the statutes of a law that directly affected the process of installing high-voltage utility lines occurred in 1976. Act 11, Session Laws of Hawaii 1976, now codified as section 269-27.5, Hawaii Revised Statutes, required the PUC to hold a public hearing prior to any approval of a high-voltage transmission line 46 kV or greater that ran overhead through a residential district.[5] The statute is silent on what effect the public hearing should have on the approval process and does not address the undergrounding of these types of lines.

The Public Utilities Commission clarified its position on the need to underground utility lines in a 1991 decision stating, "The commission's general practice at this time is not to require the Hawaiian Electric Company to underground its 138 kV transmission lines."[6] The Public Utilities Commission went on to instruct Hawaiian Electric Company that future applications should consider the undergrounding of these wires and requested the Legislature to address when lines should be placed underground and who should pay for it.[7] The Legislature responded three years later, in 1994 with the passage of Act 133, Session Laws of Hawaii 1994.

Act 133, Session Laws of Hawaii 1994, came on the heels of another PUC order. PUC Decision and Order No. 13201, issued April 7, 1994, concerning the Hawaiian Electric Company's application to commit funds for the construction of a 138 kV line in its Waiau-Campbell Industrial Park project, reiterated the PUC's previous decisions by stating that aesthetics, preservation of scenic views, and inconclusive health effects of electric and magnetic fields (EMF) were not compelling reasons to overcome the PUC's responsibility to minimize cost to ratepayers.[8] As a mitigating measure in that project, Hawaiian Electric Company proposed the undergrounding of the existing distribution wires along Kamehameha Highway in Aiea and Pearl City and the PUC approved. Act 133 responded to this decision by seeking to expand the scope of issues beyond cost. Act 133, codified in section 269-27.6(a), Hawaii Revised Statutes, specifically requires the PUC to consider factors other than cost when considering applications for high voltage utility lines of 46 kV or more.

An appeal to the Supreme Court of the State of Hawaii of PUC Decision and Order No. 13201, was affirmed in an opinion issued June 18, 1996. The Legislature took further action with Act 95, Session Laws of 1997, to further define the evaluation process for the placement of high-voltage electric transmission lines by requiring the PUC to make specific findings on a series of other issues. Similar bills introduced that year proposed that the PUC require all utility lines in urban areas be underground unless the PUC found no adverse effects on historical,

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[5] Act 11, Session Laws of 1976, codified as Section 269-27.5, Hawaii Revised Statutes (1993).

[6] In the matter of Hawaiian Electric Company, Inc., Public Utilities Commission Docket No. 6789, Decision and Order 11135; July 1, 1991, p. 22.

[7] Ibid.

[8] In the matter of Hawaiian Electric Company, Inc., Public Utilities Commission Docket No. 7256, Decision and Order 13201, April 7, 1994, p. 38-39.

cultural, archaeological factors, view planes and the health and safety of the public.[9] Those restrictive proposals did not pass. The final legislation, Act 95, Session Laws of Hawaii 1997, requiring the PUC to make a laundry list of findings, has yet to be tested as no electric utility has submitted a formal request for a line. The legislation is expected to be tested when Hawaiian Electric Company submits an application to the PUC to close the "Ring of Reliability"[10] by connecting the Kamoku and Pukele substations with a 138 kV line.

The most current favored route for the Kamoku-Pukele line is underground from the Kamoku substation on Date Street through the University of Hawaii Lower Campus then, with conventional overhead technology, over Waahila Ridge to the back of Palolo Valley to the Pukele Substation.[11] Objections to this line include objections based on both whether or not there is a need for the line and where the line should be placed.

While the Bureau is cognizant of this specific pending project, it is important to clarify that the directives of the Concurrent Resolution require investigation of general policies that would apply in a broad range of situations and not just the specific event that may have instigated this study. Although the background of this issue may be focused on the electric utility and high-voltage transmission lines at this time, the reality is that any analysis cannot proceed without the inclusion of both telecommunications and cable utilities. Most of the utility poles in the State are not for high-voltage electricity *transmission*, but are for the *distribution* of electricity, telecommunications and cable television.

The distinction between electric *distribution* lines combined with telecommunications and cable television, and electric high-voltage *transmission* lines allows the Bureau to approach this study with a dual focus. Although the majority of controversy has centered around new high-voltage transmission lines, current plans indicate that the number of proposed transmission lines greater than 46 kV within the next twenty years is very limited.[12] On the other hand, many distribution lines still clutter several communities. While newer developments already include underground utilities in the design of projects, either by ordinance or by choice, there are limited opportunities for converting older neighborhoods from aboveground to underground facilities.

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[9] See H.B. No. 2320, 1997; S.B. No. 1949, 1997; and H.B. 2239, 1997.

[10] The "Ring of Reliability" is a term used to designate a series of 138 kV lines that circle Oahu and provide alternate connections to service areas in the event of outage in one area.

[11] Hawaiian Electric Company, *Final Environmental Impact Statement Kamoku Pukele 138kV Transmission Line Project*, December 1998, p. ES-6. (As prepared by CH2M Hill, Inc., Honolulu, Hawaii).

[12] Steiner, Mary, PUC Pulp, Letter to the Editor of Honolulu Weekly, *Honolulu Weekly*, April 14-20, 1999, p. 3; confirmed by Kevin Doyle, Legislative Liaison, Hawaiian Electric Company and Steve Golden, Citizens Utilities, Kauai Electric Company.

Scope of Study

The scope of this study has maintained a narrow focus in order to provide useful information on state policies concerning the undergrounding of utilities. History is considered in the analysis, but the Bureau has focused on opportunities to provide alternatives for the future, both short-term and long-term. The Concurrent Resolution is specific in its three requests that the Bureau:

(1) Identify statewide issues and policies concerning undergrounding of public utilities;

(2) Survey federal, state, and major metropolitan areas concerning the placement of utilities; and

(3) Identify alternative processes in collecting information and evaluating whether undergrounding is required and under what conditions.

In conducting this study, the Bureau contacted all the named agencies and organizations included in the Concurrent Resolution and sought their input at various stages of the research and writing of this report. With their assistance the Bureau has identified the policies and issues of undergrounding utility lines in Chapter 2. Examining other jurisdictions, the Bureau focused on jurisdictions that are of similar size and climate or look to tourism as an important economic asset. Chapter 3 contains the report on other jurisdictions. Finally, in Chapter 4, with the research and analysis of the first two directives, the Bureau offers alternative processes for evaluation and decision-making that reflect alternative state policies and address the issues accordingly. Included in Chapter 4 are the Bureau's findings and recommendations.

Chapter 2

POLICIES AND ISSUES

Policy is "a principle, plan, or course of action taken by a government." Webster's New World Dictionary Third College Edition

Current Policy

A general state policy regarding the undergrounding of public utility lines does not appear in the Hawaii Revised Statutes, although it has been addressed in two specific circumstances. One policy stated in the statutes regulates federal-aid highway projects and the other regulates the placement of high-voltage electric transmission lines. The policy regarding undergrounding of utility wires for federal-aid highway projects requires the Director of Transportation to install public utility facilities below ground on the redesign, reconstruction or construction of any highway where federal-aid is available to share in the cost differential between underground and overhead facilities.[13]

Regarding the placement of high voltage electricity transmission lines, the Public Utilities Commission (PUC) must determine whether a benefit exists that outweighs costs when considering whether the transmission lines should be placed underground. Additionally, the PUC must consider whether there is a government policy requiring underground lines and whether there is money committed to the program or other parties are willing to pay the cost differential between overhead and underground lines. The statute also requires the Public Utilities Commission to make certain findings if the proposed transmission wires are 138 kV or higher.[14] The statute is concerned only with electric high-voltage transmission wires, and without a definitive general policy on the undergrounding of public utility lines, the Bureau must necessarily turn to broader policies for guidelines to determine the State's principles, plans and course of action regarding the undergrounding of public utility lines.

The Constitution of the State of Hawaii does not speak specifically to the issue of undergrounding public utilities but requires, "for the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawaii's natural beauty…"[15] The State Planning Law[16] includes policy statements relating to the policies for energy and

[13] Section 264-33.5, Hawaii Revised Statutes.

[14] Section 269-27.5, Hawaii Revised Statutes.

[15] Section 1, Article XI, The Constitution of the State of Hawaii.

[16] Generally, Chapter 226, Hawaii Revised Statutes.

telecommunications systems that require the State to "ensure the provision of adequate, reasonably priced, and dependable power and telecommunication services to accommodate demand."[17] It is also the State's policy to:

> *…base decisions of least-cost supply-side and demand-side energy resource options on a comparison of the total costs and benefits when a least-cost is determined by a reasonably comprehensive, quantitative, and qualitative accounting of their long-term, direct and indirect economic, environmental, social, cultural, and public health costs and benefits.*[18]

In addition, the law requires that any general facilities plan must:

> *…encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities.19*

Furthermore, general state policy requires that planning for energy and telecommunications systems support statewide social, economic, and physical objectives.[20] These general policy statements obtained on state law reflect the conflicting nature of the goals of regulating public utilities. But if blended and balanced, they can act as guides toward setting more policies that are more specific. With these current policies in mind, this report identifies the issues surrounding the undergrounding of public utilities.

Issues

Many of the issues surrounding undergrounding of public utility lines are familiar. This report organizes the issues identified into seven different categories. They are: (1) type of line; (2) location; (3) benefits of undergrounding; (4) costs; (5) public sentiment; (6) technological issues; and (7) legal matters.

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[17] Section 226-18(b), Hawaii Revised Statutes.

[18] Section 226-18(c)(3), Hawaii Revised Statutes.

[19] Section 226-14(b)(2), Hawaii Revised Statutes.

[20] Section 226-14(a), Hawaii Revised Statutes.

1. Type of Line

There are three types of above-ground public utility lines: electrical, telephone, and cable. This study also includes a fourth separate category of county-maintained streetlights. It is important to focus on the type of line because the application of other issues may affect the analysis of a situation differently. At the same time, when considering the policies and issues of undergrounding each type of utility, all of the utilities must be considered as a unit as well. The impact of any issue on a single type of line may affect the utilities as a group because most of the utility poles are shared by the electric, telephone, and cable companies along with counties' streetlights. Each pole having shared utilities has higher voltage electric transmission lines at the top, followed in descending order by electricity distribution wires, telephone wires, followed by cable lines and finally the street light attachment itself. The utility poles are governed by the General Orders of the Public Utilities Commission which specify construction and safety issues.[21]

Electric transmission and distribution lines vary significantly in the levels of voltage they can carry. High-voltage electric transmission lines are lines carrying 46 kV or more. On Oahu, the highest voltage of transmission line is 138 kV. On the neighbor islands of Maui, Hawaii, and Kauai, the highest voltage transmission line is 69 kV. The more common type of electrical line is a distribution line, usually about 12 kV and below. These are the types that are heavily concentrated overhead on poles in older neighborhoods, such as Kaimuki or Waianae. The amount of electricity transmitted over wires may affect the analysis for undergrounding. Different levels of voltage in electricity lines have different standards in the law to require undergrounding. Below 46 kV there are no applicable state laws and are only subject to the General Orders of the Public Utilities Commission. Transmission lines with voltages of 46 kV and up to 138 kV, must be undergrounded if benefits exist that outweigh the cost of undergrounding.[22] Finally, lines of 138 kV and above require the Public Utilities Commission to make specific findings on a variety of items. While voltage is a threshold issue for electricity, it may not be applicable to telecommunications and cable.

Telephone and cable lines share the same poles with the electricity distribution and lower-voltage transmission lines. The poles are typically eighteen to twenty-four inch diameter poles spaced 300 feet apart. The 46 kV lines are hung at the top about 40 to 60 feet off the ground and often include a pole-mounted transformer. The 12 kV lines are usually 40 feet above the ground and may often appear insignificant compared to the bulkier telecommunications and cable lines which are a few feet below the 12 kV lines. It is clear that any analysis of

[21] The Public Utilities Commission is established under Chapter 269, Hawaii Revised Statutes, and is authorized to adopt rules in accordance with Chapter 91, Hawaii Revised Statutes. The General Orders that govern the construction and safety of the poles are found throughout the General Orders as they relate to the utilities. General Order No. 7 relates to the electric industry, while General Order No. 8 regulates the telecommunications industry.

[22] Section 269-27.6, Hawaii Revised Statutes.

undergrounding electrical distribution wires must include considerations applicable to the telecommunications and cable lines because the visual plane cannot be cleared without including the undergrounding of telephone and cable lines. In addition, utilities that own telephone and cable lines have a financial interest in any undergrounding policies because of their financial interest in the shared poles and other related expenses.

Finally, while the public often takes for granted the street lights that guide us home at night in urban or residential areas, the fact remains that without utility poles, those street lights would have to be installed on their own poles. In the City and County of Honolulu alone, there are as many 13,000 streetlights supported by common utility poles. This requires the analysis of undergrounding to include the interests of each of the counties.

2. Location

The location of utility lines is a critical issue in the analysis of undergrounding utility lines because it brings into play jurisdictional issues where regulation may already exist. The designation of the four major land use districts under the Land Use Law: urban, rural, agricultural, and conservation, are determined by the Land Use Commission under Chapter 205, Hawaii Revised Statutes. The counties, through zoning ordinances, have the authority, within the confines of general guidelines provided in Chapter 205, to control to some degree the type of development in all types of land use districts except conservation districts. Counties have the authority to develop different density levels of residential areas as well as the structure of industrial zoning. Conservation districts are regulated by of the Department of Land and Natural Resources under Chapter 183C, Hawaii Revised Statutes.

The location of a utility line may also ignite different community interests depending upon the interests of the specific area. A common objection to undergrounding is for one community to contribute to the cost of undergrounding a different community when only a single community receives the benefit. Communities having higher income residents may be more agreeable to participate in costs than communities with lower incomes per capita.

Residential. Residential zoning, regardless of urban or rural land use, is generally relinquished to the county authority. Three of the four counties have exercised their authority through zoning ordinances to set general policy for the undergrounding of utility lines. The County of Hawaii is the only county that does not have some requirement to underground utilities in new developments.

All new developments of three or more lots on Oahu have been required to underground utility wires by the Revised Ordinances of Honolulu since 1967.[23] The ordinance does provide

[23] Section 22.5-1, Revised Ordinances of Honolulu 1990 (enacted as Ordinance #2875, 1966).

for exceptions to the general rule, for example electrical or transmission lines that are in excess of 15 kV are excluded and may be installed overhead.

The County of Kauai and County of Maui have similar ordinances. Maui requires undergrounding for developments of four or more lots.[24] Kauai requires the undergrounding of utilities in resort districts or residential areas where the density is greater than ten units per acre.[25]

The County of Hawaii has no requirement to underground but developers of upscale units have recognized that to achieve a higher end product, it is necessary to place utility lines underground.[26] Recent condominium developments on the west side of the island are evidence of this policy of developers.

Industrial. The Bureau did not identify any general requirements to underground utilities in areas zoned industrial except specifically for the Kakaako Community Development District. The Kakaako Community Development District is a state-designated development district of mixed residential and industrial uses. Within the district, underground utilities are required for new developments and provisions for the conversion of existing overhead lines to underground facilities are included in the development plans. Rules interpreting development statutes require the undergrounding of utilities in order to conform with redevelopment policies of the Hawaii Community Development Authority.[27] The Kakaako Community Development District is part of a master development plan that incorporates the recognition of natural beauty for tourism development as well as aesthetic view planes. While some may see this as a trend toward undergrounding, the Bureau notes it is still uncommon for higher density industrial areas (where ready and safe access to a higher level of utility use are important) to emphasize aesthetics. These areas have not been a prime target of undergrounding enthusiasts.

Conservation Districts. Conservation districts are more strictly regulated. Conservation districts are defined by the Land Use Commission as authorized in section 205-2, Hawaii Revised Statutes, and:

> *…shall include areas necessary for protecting watersheds and water sources; preserving scenic and historic areas; providing park lands, wilderness, and beach reserves;*

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[24] Section 18.20.14, County Code of Maui.

[25] County of Kauai Consolidated Ordinances, 9-2.7.

[26] Telephone interview with Gerald Takase, Deputy Corporation Counsel, County of Hawaii , August 5, 1999, who acknowledged that recent developments on the west side of the Island have installed utility lines underground without regulation.

[27] 15-23-76, Hawaii Administrative Rules.

> *conserving indigenous or endemic plants, fish, and wildlife, including those which are threatened or endangered; preventing floods and soil erosion; forestry; open space areas whose existing openness, natural condition, or present state of use, if retained, would enhance the present or potential value of abutting or surrounding communities, or would maintain or enhance the conservation of natural or scenic resources; areas of value for recreational purpose; other related activities; and other permitted uses not detrimental to a multiple use conservation concept.*[28]

Conservation districts are regulated by Chapter 183C, Hawaii Revised Statutes, which requires that a permit be issued by the Department of Land and Natural Resources (DLNR) for all land use within a conservation district. The proposed use within a conservation district is first subject to a preliminary screening called an environmental assessment (EA).[29] The EA is issued by the DLNR based on information supplied by the applicant as required under the applicable rules.[30] If the DLNR determines in the EA that the proposed use will have a significant impact then the applicant must conduct a complete environmental impact statement (EIS) that requires satisfactorily addressing the concerns of the community in writing.

Summary. The regulation of each type of location is different and when considering blanket policies for undergrounding utility lines it is important to provide flexibility that will accommodate the current requirements in each community environment.

The exercise of the policies and issues in location of utility lines can be observed in a schematic representation, provided by Hawaiian Electric Company and Citizens Utilities, showing where the underground and aboveground lines are on Oahu and Kauai (see Appendices B and C). GTE Hawaiian Tel supplied a similar map that was unable to be reprinted in this report. It is apparent from the current practice of the counties and from the maps supplied by Hawaiian Electric, Citizens Electric, and GTE Hawaiian Tel that population density is an issue with regard to locations of underground utilities.

3. Benefits of Undergrounding

Benefits of undergrounding have been identified as an issue to underground utility lines by the law. Section 269-27.6, Hawaii Revised Statutes, requires the PUC to determine whether a benefit exists that outweighs the cost in their evaluation of whether electric transmission lines should be underground. While the law does not presently include the telecommunications and cable industry, much of the discussion on this issue applies to both. The law does not articulate

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[28] Section 205-2(e), Hawaii Revised Statutes.

[29] Section 343-5(a)(2), Hawaii Revised Statutes.

[30] Section 11-200-9, Hawaii Administrative Rules (Department of Land and Natural Resources).

the possible benefits but lists a series of specific findings required by the Public Utilities Commission for lines greater than 138 kV to be undergrounded. Some of these specific findings can be translated into the following benefits for consideration.

A. Safety and Liability.[31] Safety is often heralded as a benefit of underground utility lines. The issue has several different facets but is distinguishable from public health issues that are discussed below. The safety benefits of underground utility lines focus on the reduced risk of accidents caused by lines downed by the force of nature or by vehicle accidents. The other side of the coin is that the danger does not disappear with underground lines. Liability may still exist.

Traffic Accidents. The Department of Transportation compiles statistics on traffic accidents involving utility poles. Approximately five percent of all traffic accidents in the last three years involved a utility pole. The statistics are slightly higher in Kauai County. Figure 2-1 provides information supplied by the Department of Transportation.

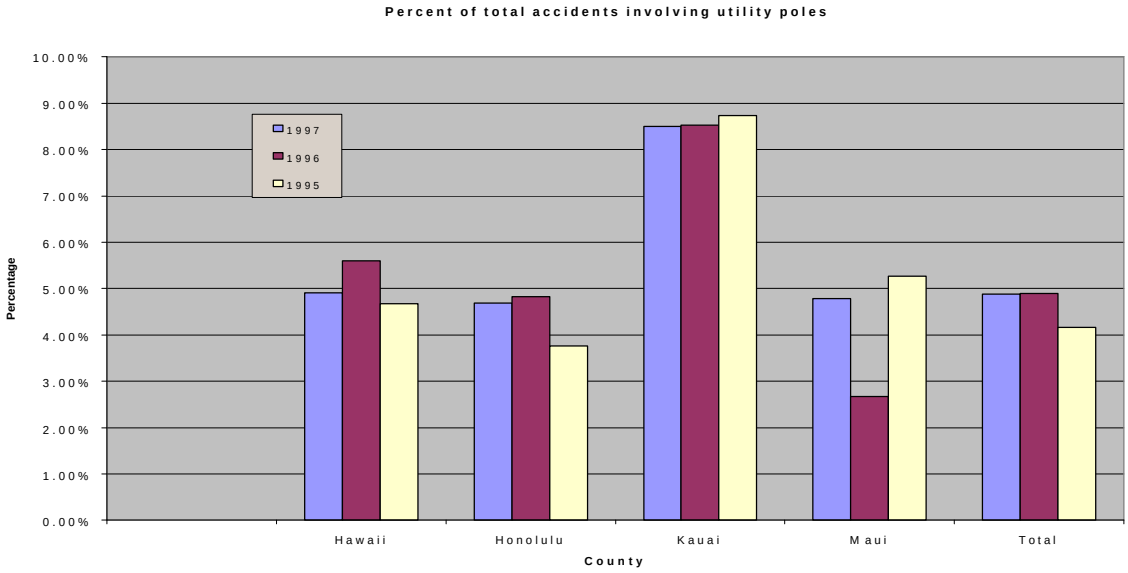

Figure 2-1. Percent of total accidents involving utility poles.

Liability issues aside, traffic accidents involving utility poles also increase the damage and repair costs of poles for the utilities. The number of major accidents involving utility poles across the State has been slowly decreasing. Table 2-1 shows a breakdown of the number of major accidents by county that have involved utility poles.

[31] Section 269-27.6(b)(4), Hawaii Revised Statutes.

Table 2-1. Number of major traffic accidents involving utility poles by county throughout the State for 1995, 1996, and 1997, as reported by the Department of Transportation, June 1999.

	Hawaii	Honolulu	Maui	Kauai	Total
1997	116	396	56	40	608
1996	133	455	29	34	651
1995	120	463	65	42	690

A decreasing number of traffic accidents involving utility poles may imply safer conditions for the public as well as lower repair and damage costs to utilities.

Civil Defense Planning. Civil defense planners and utilities alike have acknowledged that underground wires are less susceptible to damage from hurricanes and high winds.[32] But there is still disagreement as to the best approach to handle this safety issue. A study completed by the United States Department of Energy, Office of Energy Management, to determine how to allocate federal funds that were available to the State of Hawaii to repair the damage caused by Hurricane Iniki,[33] did not support a proposal to underground wires on Oahu as a cost-effective safety measure from damage caused by hurricanes and high winds.[34] This conclusion is in conflict with the general opinion of the state Department of Defense, Division of Civil Defense, citing studies completed in Florida,[35] with regard to the safety of underground lines in high winds. This disparity can be reconciled by highlighting that the federal study focused on the best use of limited funds from the Federal Emergency Management Agency program available for rehabilitation after Hurricane Iniki and does not include a full analysis of the scope of issues discussed in this report.

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[32] Utilities Coordinating Committee, "A Proposal to Underground All Utilities on Oahu Over the Next Twenty Years," City and County of Honolulu, December 17, 1990, p. 3.

[33] United States, Department of Energy, Office of Emergency Management for the State of Hawaii, *Hawaiian Islands Hazard Mitigation Report*, 1995, p. 1.

[34] The conclusion was based on an expected lifetime of 30 years for underground electric transmission wires and the likelihood of a hurricane hitting Oahu every 50 years. Based on cost estimates generated by Hawaiian Electric Company that undergrounding would be ten times more costly and, therefore, the cost/benefit analysis would not support undergrounding to protect against hurricane and wind damage. Ibid., p. 31-32.

[35] Telephone conversation with Norman Ishikawa, State Civil Defense, Department of Defense, August 12, 1999.

Underground utilities *do* reduce the danger to the public from downed electric wires, but *do not* eliminate all of the danger. Underground wires may incur damage from other sources and can be harmful to the public. For example, if manhole covers are thrown into the air from the release of built up pressure or explosions there can be physical damage to pedestrians or motor vehicles in the path. Additionally, underground wires may be harder to secure in the event of an accident. The Honolulu Fire Department expressed that concern in a 1993 study on undergrounding public utilities, noting that special equipment is needed to fight any fires in the extremely confined space of underground utilities.[36] Recognizing that danger still exists in underground utility wires, the Bureau notes that currently many utility wires are already underground and specific attention to these safety issues must be handled regardless of any further plans to underground utility wires.

Excavation Hazards. A safety issue that is related to underground utility lines is the potential for danger from accidental excavation that results in disrupted service or physical injury to the parties who dig without considering what is underground. Many states have enacted mandatory one-call programs authorizing their public utility commission to establish or contract with a non-profit entity that tracks the specific locations of all underground facilities. The one-call program requires any excavator to call before digging to ensure there will be no accidental damage to underground facilities caused by the excavation. Penalties are established for those who excavate without calling and cause damage. There is currently no requirement in Hawaii for utilities to participate in any programs that record the locations of underground distribution systems. Several utilities voluntarily participate in Hawaii's "Call Before You Dig" program.

B. Public Health. Improved public health has been identified as a benefit of undergrounding because of reduced risk to known and unknown environmental hazards. The public health arena encompasses the issues related to the electric and magnetic field (EMF) issues and pesticides. EMF emissions have a direct relationship to the installation of utility wires while pesticide issues are raised indirectly regarding the maintenance of the aboveground utilities. The concept of the public mental well-being is not included here and is discussed below as it relates to quality of life issues.

Electric and Magnetic Field (EMF) Emissions. Maintaining optimal environmental conditions that are appropriate to the cultural heritage and tourism-related economy of the State are an established priority in Hawaii. Overhead electricity wires may threaten the environment because the effects of exposure to electric and magnetic fields produced by electricity (commonly referred to as EMF) are uncertain. Because the risk is unknown by science, the

[36] Libbey, Jr., Roland D., "Review and Recommendation Regarding a Proposal to Amend the Development Plan Common Provision Relating to The Location of Certain Utility Lines, 93/CP-2(IC)", Planning Department, City and County of Honolulu, October 27, 1993, p. 6. This opinion expressed by the Honolulu Fire Department in 1993 is still the position of the Honolulu Fire Department as confirmed by Chief Hardy Akau in a telephone interview on June 24, 1999.

benefit of underground utility wires is to protect the population from overexposure to this unknown risk. A short explanation of EMF is required to understand these issues.

An electric and magnetic field is produced by all electrical items. The EMF issue does not apply to telephone and cable wires but only refers to low-frequency electrical current which includes *both* common appliances and high voltage power lines. Briefly, an electrical field is created when an appliance is plugged in, or a line is connected, to a source of electricity. A magnetic field is produced by *moving* electrical charges and is created when the appliance is turned on, and electricity travels over the line. The term "electromagnetic" field implies that the electric and magnetic fields are interrelated.[37] It is relatively easy to shield people from exposure to electric fields using commonly available materials but magnetic fields can pass through anything.[38] Both of these fields disperse over distance. For example, a hairdryer used six inches from the head may provide the same, or more, exposure to magnetic fields as being directly under certain active high-voltage power lines on regulation poles.

Levels of exposure to EMF has been the concern of most research to date in this area. The scientific evidence to date has been inconclusive in determining any cause and effect relationship between exposure to magnetic fields and increased likelihood of health hazards.[39] Without an identified risk, there can be no measurable standard. The United States Environmental Protection Agency has adopted the position of the National Research Council and cannot take action until a measurable standard is introduced. The state Department of Health concurs and recognizes that EMF has not yet proven to be a health hazard. Since research data is inconclusive relating to the health effects of EMF, the Department of Health's policy is to favor protection of the public health and recommends public exposure be minimized where technically feasible. The Department of Health has recommended a "prudent avoidance" policy.

> *"Prudent avoidance" means that reasonable, practical, simple, and relatively inexpensive actions should be considered to reduce exposure.*[40]

The fact that distance dissipates EMF causes a slight wrinkle in the perception of undergrounding utility wires as a benefit. When the wires are atop the poles they are at least

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[37] "Electric Magnetic Fields in Your Environment", United States, Environmental Protection Agency Office of Radiation and Indoor Air (6603J); Doc. #402-R-92-008, December 1992; as downloaded from http://faculty.millikin.edu/~jaskill.nsm.faculty.mu/emfGOV.html on June 3, 1999.

[38] Ibid.

[39] National Research Council, *Possible Health Effects of Exposure to Residential Electric and Magnetic Fields*, National Academy Press, Washington, D.C.

[40] Hawaii, Department of Health Policy Relating to Electric and Magnetic Fields From Power-Frequency Sources, January 19, 1994 (attached as Appendix D).

eighteen feet above the ground.[41] In contrast, when the lines are underground the minimum distance from the sidewalk is eighteen inches for distribution wires and thirty-six inches for high-voltage transmission lines.[42] There is recognition that some mechanical protection from exposure exists as provided in General Order 10 for exceptions to minimum depths.[43] The Environmental Protection Agency also recognizes that:

> *…burying power lines underground often does reduce the magnetic fields. This is not because they are underground, however, since dirt does not act as a shield. Instead, the lower magnetic field is due to the way lines are arranged and encased when they are buried, which can have the effect of canceling part of the field.*[44]

The State of Hawaii does not make specific requirements for permissible magnetic strengths regarding electric transmission lines, but seven states, Montana, Minnesota, New Jersey, New York, North Dakota, Oregon and Florida have formally adopted standards to limit the permissible magnetic strength along public rights of way. The specifics of those standards are contained in Chapter 3 of this report.

The State Department of Education has expressed that its concern is to take the safest route possible regarding exposure to EMF to the students, and is not concerned with aesthetics of overhead lines. If underground is more dangerous, then that is not a preferred route either.[45]

Pesticides. The use of pesticides has been a necessary burden in the tropical environment of the State and can contribute to the general public's increased exposure to toxins and other contaminants. The maintenance of overhead utility wires requires ensuring proper access to and increasing the degree of safety of the facilities. The use of pesticides is common for keeping unwanted growth at bay around facilities and structures that carry overhead utility lines. With the installation of underground lines, the need for pesticide treatment is reduced. This decreased need for pesticide use with underground lines is identified as a benefit to public health.

C. Aesthetics. The most recurring benefit stated regarding underground utility wires is the aesthetic appeal to a vista without the interruption of utility lines. Preserving the natural beauty of the land is a basic concern to the State as expressed in the Constitution of the State of

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[41] Hawaii, Public Utilities Commission Rules, General Order 6, Table 1.

[42] Hawaii, Public Utilities Commission Rules, General Order 10, section 33.4 (c), February 18, 1968.

[43] Ibid., Section 33.4(D).

[44] "Electric Magnetic Fields in Your Environment", supra note 37.

[45] Libbey, Jr., Roland D., supra note 36, at p. 4.

Hawaii.[46] The aesthetic benefit should be considered from an environmental preservation perspective and from the human perspective of the impact on quality of life.

Hawaii's natural beauty and the people's respect for the land is, some would say, the essence of the state character as espoused in the state motto.[47] It is indisputable that people would rather preserve Hawaii's natural beauty by placing lines underground in the absence of other factors. Of those other factors, cost has most often led people to abandon this ideal. The Department of Hawaiian Home Lands is interested in the preservation of significant public views and other environmental factors and may support undergrounding of public utilities on a case-by-case basis as determined by funding.[48]

Preserving and restoring the view plane has been a recurring theme in different venues of the State. The establishment of large tracts of nature reserves and conservation districts throughout the State is evidence that the natural beauty of the State is important and worth protecting. Even in one of the State's most populated areas, downtown Honolulu, open avenues to the sea, often referred to as mauka-makai views, have been an important part of Honolulu's development. Much of this development has included the undergrounding of utility wires to preserve those view planes. A general policy of the City and County of Honolulu with regard to public views is found in an ordinance entitled "General Urban Design Principles and Controls," which states that "[whenever] possible, overhead utility wires and poles that significantly obstruct public views shall be placed underground."[49]

One aspect of aesthetics that is often overlooked is the overall impact it has on the quality of life. It is often the quality of places where people seek to relax, recharge and revitalize their lives. This concept is the essence of tourism in Hawaii and should not be overlooked by residents. The State has recognized this to a degree by requiring the PUC to evaluate and make findings on the proximity and visibility of above ground high-voltage transmission systems to:

(A) High density population areas;

(B) Conservation and other valuable natural resource and public recreation areas;

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[46] Section 1, Article XI, Constitution of the State of Hawaii. For a discussion on this policy see the section on "Current Policies" in this chapter.

[47] Ua Mau Ke Ea O Ka Aina I Ka Pono is translated as, "The life of the land is perpetuated in righteousness."

[48] Libbey, Jr., Roland D., supra note 36, p. 4.

[49] Section 24-1.4(a), Revised Ordinances of Honolulu, 1990.

(C) Areas of special importance to the tourist industry;

(D) Other industries particularly dependent on Hawaii's natural beauty.[50]

Two shortcomings with this law can be quickly identified. The first, is that no effect on the outcome from the evaluation and findings is established or required. No standard is established. The value of each item cannot be determined or equated with anything. The second shortcoming in the law is that it fails to determine how these qualitative aspects are to be quantified. Without an official policy stating their worth, other tools must be found in order for the PUC to meet the requirements of the law.

4. Costs

The cost issue has been the crucial focus of undergrounding utility lines. As mentioned above, most people will agree that if the money does not come from their pocket, it would be preferable to place utility wires underground. Measuring cost has been a controverted issue. Typically, when cost is considered, direct construction costs spent at the time of construction is the focus. But, with the recent changes in the law and in order to provide a more accurate reflection of the real costs to everyone, the analysis must necessarily include a broader discussion of costs that includes indirect costs and costs of intangible items. The task appears insurmountable because of the many variable factors, even for tangible physical expenses, like trenching and manpower. Many of the intangible items, such as determining the value of a clear view plane to high density areas or areas of special importance to tourism, have not been measured at all because an acceptable method has not been found. The cost of undergrounding must necessarily include the different facets of cost, both quantitative and qualitative, both short and long term. This part of the report breaks down the aspects of cost, examines methods of apportioning and identifies resources of costs so that a full analysis of the policies and issues of undergrounding can be made.

Utilities. The cost and the recovery of the cost of constructing underground utility wires will vary according to different factors. In a new residential subdivision the costs to build underground utility wires will initially be borne by the developer who may already be required in some places to place them underground. The developer will be able to recoup the cost for underground utility wires in the sale price of the homes.

The cost of constructing new high-voltage electrical transmission lines does not present the same opportunity to recoup the costs as in new residential developments. Constructing new high-voltage electrical transmission lines usually affects a broader scope of people and requires authorizations from various agencies. Locating a route where easements can be obtained is often

[50] Section 269-27.5(b)(6), Hawaii Revised Statutes (1993, 1998 Supp.).

a costly matter. These capital costs are subject to review by the PUC for need and use before any commitment can be made by the utility. These costs are usually recovered through increased efficiency within the utility operations or by a rate increase to consumers.

The conversion of utility lines from overhead to underground lines is a different matter. When looking at converting aboveground to underground wires the construction issues include trenching and laying new lines, as well as the removal of old lines and installation of street lights. Actual estimates of these figures are hard to pin down.

The review of costs for converting existing aboveground utility lines to underground lines throughout Oahu has been going on for at least a decade. In 1989, the Department of Public Works of Honolulu (DPW) estimated the cost to be $13 billion and concluded that "further work on [the] proposal [is] inappropriate."[51] After Hurricane Iniki in 1992, the DPW reexamined the issue and determined that even if the funding was available, "resources and expertise were not available for timely conversion from overhead to underground."[52] In 1993, the Planning Commission of the City and County of Honolulu examined the issue. Using estimates from the affected utilities, the commission estimated it would cost $16.5 billion over twenty years to underground all existing lines including 138 kV lines.[53] The increase in these cost estimates is in conflict with an estimate to convert utility wires in Lanikai that shows declining costs over the years that is attributed to improved technology.

> *Lanikai has actively explored the possibility of undergrounding all the utility lines in their community. In 1996, the estimate to do this work was $9,451,000, by 1998, in just two short years, the estimate had dropped in half to $4,744,000.*[54]

Hawaiian Electric Company offers some real costs of recent projects listed in Appendix E. From these tables it appears that the average cost per mile of the Kewalo-Kamoku underground 138 kV line was $11.3 million per mile. The average per mile for the underground 138 kV line for Archer-Iwelei/Archer-School is only $5.3 million per mile. See Appendix E for a breakdown of recent HECO projects. These estimates are dramatically different from estimates received from utilities in California.

A spokesperson[55] for Pacific Gas & Electric in San Francisco suggested that the average cost used in California for planning would be appropriate for Hawaii because some of the

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[51] Libbey, Jr., Roland D., supra note 36, p. 2.

[52] Ibid.

[53] Based on the following estimates: Hawaiian Electric Company $13.8 billion; Oceanic $340 million; and Hawaiian Tel $2.4 billion.

[54] Steiner, Mary, "PUC Pulp" Letter to the Editor of *Honolulu Weekly, Honolulu Weekly*, April 14-20, 1999, p. 3.

trenching in Hawaii would be easier than in California and some would be more difficult. Pacific Gas & Electric estimates the cost of undergrounding overhead lines to be one million dollars per mile for electrical distribution wires, $250,000 per mile for telecommunications, and $250,000 per mile for the cable industry. The estimates take into account areas that may have easier trenching qualities as well as harder trenching qualities. California has had an active conversion program for more than thirty years. A more detailed explanation exists in Chapter 3.

The cost of undergrounding telecommunications and cable lines suggested by the California representative coincide with the percentage estimates made in the 1993 City and County Planners report. With an estimated 1,400 miles of cable and telecommunications distribution lines on Oahu, the cost to convert these cables is approximately 20 percent to 25 percent of the cost to convert electric line.[56]

Other costs of utility lines are related to maintenance and reliability. The same 1993 report found that the difference between maintaining overhead and underground systems or 138 kV lines appears to be minimal.[57] A Decision and Order from the PUC also confirmed that HECO concludes the differences between maintenance costs on both underground and aboveground are relatively small.[58] This is not true with the distribution system of utilities. The maintenance of an underground distribution system would be more expensive than an aboveground system.[59] Reliability issues change from lines being susceptible to hurricane or high winds and damage from traffic accidents to flood control and termite damage.

The life of both underground and aboveground lines are equal with amortization over 40 years,[60] but maintaining underground lines can be more costly because damage is not as easily detected. Additionally, damage from excavators exists with underground wires but not with overhead. Many states have instituted a mandatory one-call system to deter damage from dig-ins. Currently, many of Hawaii's utilities voluntarily participate in Hawaii One-Call program. A one-call program is an important step in protecting underground utility lines and excavators.

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[55] Rocco, Collichia, Pacific Gas & Electric, San Francisco, California.

[56] Libbey, Jr., Roland D., supra note 36, p. 11.

[57] Ibid.

[58] In the matter of Hawaiian Electric Company, Inc., Public Utilities Commission Docket No. 7256, Decision and Order 13201, April 1994, p. 23 (although the Decision and Order concludes that the record indicates the actual maintenance costs may be higher).

[59] Libbey, Jr., Roland D., supra note 36, p. 11.

[60] In the matter of Hawaiian Electric Company, Inc., supra note 58, p. 24.

These direct costs have been the main factor in determining the costs. It appears from the report that these estimates in the 1993 Planning Department report assume that all $13 billion is paid in the first year of the program and then amortized over a 40-year period without showing any effect of the 40-year amortization period.[61] This type of estimate makes an unrealistic assumption that all work would be accomplished as a single project and may be an effective tool to dissuade the pursuit of any general undergrounding approach. Other considerations regarding cost to consumers must also be taken into account.

Consumers. The most direct cost to consumers is an increase in rates. When costs to a utility increase, the source of additional revenue for the utility is to increase the rates to consumers. This is the easiest way to restore the authorized rate of return allowed on a regulated utility. If a utility increases its costs by converting overhead lines to underground lines, the rates will go up. Usually everyone is against an increase in rates. Utilities generally do not want to have to ask for a rate increase. Compared to the rest of the nation, electricity rates in Hawaii are already at the top of the chart. The PUC's primary concern, and the Consumer Advocate's role is to ensure reliable service at reasonable rates. While it appears as though the consumer might want to pay an increase in rates to have underground lines, it is not clear that that is really possible.

While the consumer is free to voice an opinion and may agree to pay an increase in rates, the PUC has recognized that unless "ratepayers as a whole consent to bear the high cost of putting lines underground" there is no requirement for a utility to place lines underground.[62] No rule determining how ratepayers can manifest their consent of increased rates to allow underground lines has ever been enacted by the PUC. The Supreme Court of Hawaii has not required the PUC to adopt one because all the law[63] requires is for a public hearing to be held. The law is silent as to the standard for evaluation of the comments.

On the other hand, there are still consumers in low-income communities where any increase in utility bills may be an undue burden. This dichotomy highlights an issue discussed under public sentiment in more detail.

Another cost to consumers is the change in property values that occurs with overhead and underground wires. A recent draft of the environmental impact statement prepared as part of the

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[61] Letter to Robin Foster, Chief Planning Officer from Ken T. Morikami, Senior Project Manager dated October 25, 1993, attached to the Libbey, Jr., Roland D., "Review and Recommendation Regarding a Proposal to Amend the Development Plan Common Provision Relating to The Location of Certain Utility Lines, 93/CP-2(IC)", Planning Department, City and County of Honolulu, October 27, 1993.

[62] In the matter of the Application of Hawaiian Electric Company Inc., No. 18156, Hawaii Supreme Court June 18, 1996, Docket 7256, p.27.

[63] Section 269-27.5, Hawaii Revised Statutes, (1993).

Kamoku-Pukele Waahila Ridge project stated that property values are not affected by the installation of 138 kV lines on adjacent property.[64] This is in direct conflict with findings related to the passage of Act 84, Session Laws of Hawaii 1996,[65] that residents' property values will increase when lines are underground.[66]

This is an important aspect of a resident's quality of life. Many residents are adamantly opposed to living near high-transmission lines because they fear the unknown effects of EMF emissions. A more basic objection to having overhead lines is the value the natural beauty brings to the quality of their life. This intangible item, quality of life, as are certain benefits discussed earlier, is a difficult item to quantify. Quantifying these intangibles has been a difficult task and is the subject of an emerging branch in the field of economics.

Using econometrics, a statistical technique used by economists, it is possible to find the correlation between tangible items and non-tangible items, for example, housing prices and environmental quality in an area. Most studies find an elasticity of housing prices with respect to pollution that is around 0.1. That means a 1 percent decrease in pollution would lead to a 0.1 percent increase in housing prices.[67] Econometrics is used in the valuation of intangible items two ways. The revealed preferences approach of measurement looks at actual market transactions to infer value. Another type of measurement is the stated preference approach.

The stated preference approach asks people what the value is of bringing about an environmental event. This type of analysis has become popular in evaluations under the Clean Air Act. This type of survey allows the verification of results, and the estimation of income elasticity.[68] Examples of how this theory has been used to measure externalities as early as 1963 includes studies that have identified the value of outdoor recreation opportunities in the Maine woods to be between $1 and $2 per day, or increased visibility at the Grand Canyon was valued between $5 and $10. Another use of this theory has been used to value cleaner water. People are willing to pay $12.30 to improve water from "boatable" to "fishable"; and $29.60 to improve water from "boatable" to "swimmable".[69]

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[64] Final Environmental Impact Statement, Hawaiian Electric Company Inc's Kamoku-Pukele 138 kV Transmission Line Project, Honolulu, December 1998, Executive Summary.

[65] Section 264-33.5, Hawaii Revised Statutes.

[66] Senate Standing Committee Report No. 2182, of the Senate Committee on Ways and Means on Senate Bill No. 2999, Senate Journal 1996, p. 1051.

[67] http://www.bschool.ukans.edu/home/dpopp/econ610/lectures/610lct11.html -, as of August 27, 1999.

[68] http://www.bschool.ukans.edu/home/dpopp/econ610/lectures/610lct12.html - Valuing Environmental Goods.

[69] http://www.bschool.ukans.edu/home/dpopp/econ610/lectures/610lct11.html -, as of August 27, 1999.

Using this method of econometrics would appear to be able to assist the PUC in evaluating the true costs of underground lines, as compared to overhead lines to consumers and government alike. In Hawaii, however, no such analysis has been conducted.

Government. The costs to government of undergrounding utility lines cannot be ignored and should be evaluated when considering whether a benefit outweighs a cost. Hawaii's reputation as a natural resort destination with scenic beauty is dependent on the aesthetic lure of the islands. Utility lines in areas that are significant for scenic beauty may be detrimental to the overall trends in tourism. This type of a cost may also be suitable for measurement under the stated preference approach. While established areas of importance to the tourism industry have some protection through state development districts or county ordinances, many established areas of scenic beauty are susceptible to overhead lines. Marring potential eco-tourism niches will not contribute to the future development of Hawaii's economy.

The negative effects of inappropriate utility lines needs to be factored into the cost equation. These effects include potential changes to the resources that are available to government from a change in tourism. Inclusion of all the direct costs balanced against some of the intangible costs is the only way to arrive at a true total cost. Then the benefit may outweigh the cost. If it does, the next logical step is to figure out cost apportionment and resource allocation, in other words, "Who pays?"

Cost Apportionment and Resource Allocation. The money for undergrounding has to come from somewhere. There are four clear possibilities. The utilities, the ratepayers, the government, or a combination of all three could pay for the undergrounding of utilities.

The utilities already pay for much of the undergrounding of lines that are required by ordinance, as in the Haleiwa area, and by state rule, as in the Kakaako Development District. The utilities have also demonstrated a recognition for undergrounding preference in alternative proposals for new lines.[70] The PUC has supported the utility efforts in these areas. This usually means that when the utility comes to the PUC for a rate increase it will be granted. A short explanation of how the rate making process works is required to explain why this is so.

The utilities in Hawaii are all investor-owned, as opposed to government owned. As regulated investor-owned utilities each is entitled to a reasonable rate of return on the rate base. The rate base is the amount of funds a regulated utility puts into capital projects, like power plants and infrastructure, overhead *or* underground. The higher the cost of the project, the more the utilities' rate base increases. Because the utility is entitled to a reasonable rate of return on its rate base, when the rate base increases there is a potential for more earnings to the utility. The PUC is there to ensure that capital expenditures are needed and useful and requires pre-approval

[70] Final EIS, supra note 64.

of all capital expenditures greater than $500,000.[71] It might be assumed that with this type of system the utilities should promote the opportunity to pay for higher capital cost projects because it has the potential to increase their rate base, which increases earnings even though the rate of return remains the same. This does not happen because the utilities cannot be assured they will make money. The large capital expenditures may be a wash due to the cost of bonds and the expenses of the investment in the capital project. If the utility shows a history of declining rate of return, it asks the PUC for a rate hearing. The PUC will grant the rate increase if the utility shows efficient management and reasonable capital expenditures. Because the PUC has a general order that requires the pre-approval of capital expenditures, rate hearings do not focus on the amount of the rate base. When the PUC approves a rate increase, the consumers' rates increase.

The system of regulated industries requires finding a method for utilities to contribute without affecting their rate of return. There are several methods to explore. These include earmarking funds that are already being paid into state and county coffers or having utilities set aside a percentage of funds annually that can be used for undergrounding smaller projects or can also accrue to fund larger projects.

Utilities already pay fees and taxes to the State and counties. Currently, a public utility fee equal to one-eighth of one percent of the gross income from the public utility business carried on by the public utility during the previous year is paid to the State.[72] The state public utility fee is credited to the public utilities special fund.[73] The state public utilities fund is used to fund the PUC and the Office of the Consumer Advocate.[74] The amount that is allocated from the public utilities fund to the PUC and the Consumer Advocate is further restricted by legislative appropriation.[75] In addition, any funds that exceed $1,000,000 in the fund at the end of a fiscal year lapse into the general fund.

In 1998, HECO paid $3,908,951.75 in state public utility fees under section 269-30, Hawaii Revised Statutes. Additional amounts that were unavailable at the time of this report were also contributed by all telecommunications companies. It is apparent that there is in excess of the $1,000,000 cap contributed annually and that excess is a possible source for funds to underground lines. This would not affect the rate base and would therefore not increase the rates to ratepayers. The cable companies do not pay public utility fees and if they were to participate

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[71] Hawaii, Public Utilities Commission, General Order No. 7, Rule 2.3(g)(2), and General Order No. 8, Rule 2.3(d)(2).

[72] Section 269-30, Hawaii Revised Statutes.

[73] Ibid.

[74] Section 269-33, Hawaii Revised Statutes.

[75] Ibid.

in this type of activity, then a new fee would have to be assessed and collected under Chapter 440G, Hawaii Revised Statutes.

Another method of payment for undergrounding lines by the utilities would be to set aside a small percentage of funds each year to underground and allow the funds to be eligible to accrue over a period of time. These funds could be made available for government undergrounding projects. In theory, this method would not have a dramatic effect on the rate base if only small amounts of revenue are designated each year. Through increased technology and efficiency the funds set aside for undergrounding by the utility would not affect their rate of return and, therefore, not justify a rate increase. Additionally, the government would be the party floating the bonds for the undergrounding project and therefore the utility would not have the added expense related to capital costs.

Both of these methods provide funding over a period of time as opposed to bulk allocations of capital. The second scenario identified has been used in the State of California for thirty years in converting overhead distribution lines to underground. The method could be extended to high-voltage transmission lines but may take longer periods of time to accrue the necessary funding.

Utility ratepayers and taxpayers can be the same people when considering consumers. This is not true when you consider the largest consumers of the utilities in Hawaii are government entities, federal, state and county. As explained previously, ratepayers already pay for many increases in the cost of business to utilities within a regulated industry environment.[76] A problem arises when ratepayers are required to participate in programs because some may agree and some may be opposed. On the other hand, voluntary contributions from ratepayers and taxpayers should be considered as a potential resource for undergrounding lines. The voluntary approach handles the concerns of agencies such as the Housing Finance and Development Corporation (now the Housing and Community Development Corporation of Hawaii) which is concerned about significant increases in cost to an affordable housing project.[77] Several voluntary methods of participation by ratepayers and taxpayers have been offered.

Ratepayers could be given the option to participate in a "round-up" program. The program would allow ratepayers to contribute monthly to a community fund by rounding up their utility bills to the nearest dollar amount. The change that represents the difference in the balance

[76] With deregulation in the telecommunications industry there are choices the ratepayer can make to tailor the service to their needs. Electricity ratepayers in Hawaii do not have the same choices, but there are activities that ratepayers can participate in to affect changes in the amount of electricity they require. The PUC has required the electric utilities to explore reducing the needs of their customers through supporting renewable energy options as opposed to simply meeting projected requirements. These generation-related plans are expressed in Integrated Long-Range Plans (IRP). This planning is an effort to conserve energy and promote alternatives to the production of more kilowatt hours. The cost for this planning appears as a separate line item on ratepayer's bills.

[77] Libbey, Jr., Roland D., supra note 36, p. 5.

of the bill and the rounded dollar amount would be deposited into a community fund to be used for undergrounding.

A similar method could be instituted on tax returns. Taxpayers could have an option to participate in community undergrounding funds by adding a voluntary contribution to their income tax returns. This would not divert income taxes but add an additional amount voluntarily designated by a taxpayer to be deposited into a community undergrounding fund.

Real property taxpayers already have a method to participate in community undergrounding projects through the community special districts or improvement districts that can be authorized with the consent of a substantial portion of the affected residents.

Government funds are also potential resources for funding underground programs. Federal, state and county projects have all at one time or another participated in undergrounding.

Federal programs have always been looked to as a source of funds for undergrounding. In Hawaii, federal funds have been available as part of the Federal Emergency Management Agency (FEMA) programs. Although, a report done by FEMA after Iniki did not recommend using federal funds to underground utilities as a mitigating resource, that may have been due to the lack of an ongoing program in place and the timing of the study. In response to that document the state Civil Defense agency produced a report that promotes a policy of providing technical support to enhance opportunities for mitigation during rebuilding phases.[78]

Federal funds are also used by the state Department of Transportation as required by law[79] for undergrounding when work on eligible highways is being conducted. The Department of Transportation does not like to divert these potential funds to undergrounding because it means there are less funds available for other projects.

State government can participate in the cost of undergrounding lines in several ways. The state government may already use the current law to declare community development districts that require undergrounding of utility lines in their design. In addition, the State can create a special fund for undergrounding funds and earmark funds to be deposited into that fund. As discussed in the utilities section above, funds paid into the public utility fee can be earmarked into the special fund. Due to the current economic situation, it is not likely that new fees or taxes enacted for undergrounding would be a particularly viable alternative.

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[78] Hawaii, Department of Defense, Civil Defense Office, and United States Federal Emergency Management Agency Region IX Pacific Area Office, "Hazard Mitigation Early Implementation Strategies and Long Term Recommendations for Hawaii In Response to the November 26, 1996, Disaster Declaration FEMA 1147-DR-HI."

[79] Section 264-33.5, Hawaii Revised Statutes.

Similarly, county governments collect fees from the utilities, which could be eligible funds for undergrounding.[80] The counties also have other vehicles to address undergrounding projects through declaring special improvement districts.[81]

The different ways each of the parties can participate have been raised but the most effective way to provide a cohesive undergrounding program would be to have a cooperative approach where everyone participates in the cost. There are several ways to integrate the individual contributions of the parties. The State could establish an undergrounding fund that is the depository for any voluntary contributions by ratepayers or taxpayers. In addition, the State could earmark the excess revenues from the state public utility fee to the undergrounding fund. These funds could be made available in designated percentages as collected from each county to the counties who act to provide undergrounding programs. The percentage of funds set aside by the utilities would be available to the counties through the underground programs. A program similar to this has been operating in California for thirty years, concentrating on the conversion of overhead distribution lines to underground lines.

5. Public Sentiment

Public sentiment has been recognized by the State as an important issue in undergrounding public utilities as evidenced by its inclusion of specific findings required by the Public Utilities Commission when determining whether or not high-voltage electric transmission lines should be placed underground.[82] Public sentiment is currently injected several times into the process of determining whether lines should be underground or overhead. The PUC is required to hold a hearing by law if there is transmission wire planned through a residential area.[83] In addition, any member of the public directly affected may formally intervene in a PUC hearing. The public is also eligible to participate in the process through hearings before the Department of Land and Natural Resources when an environmental impact statement is required as part of any project in a conservation district. Statutorily, the Consumer Advocate represents the consumer and is often perceived as the representative of the public sentiment, although that may not be an accurate representation.

The Consumer Advocate represents the consumer in general and does not represent a particular body that may be directly affected. The Consumer Advocate must balance the interests of consumers on one island with the interests of consumers on other islands. Often

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[80] Section 46-47, Hawaii Revised Statutes.

[81] Section 46-77, Hawaii Revised Statutes.

[82] Section 269-27.6(b)(8), Hawaii Revised Statutes.

[83] Section 269-27.5, Hawaii Revised Statutes.

these interests are not compatible. The Consumer Advocate's primary focus has been on controlling cost and in the past has repeatedly had to advocate against the increased capital expenditure that is often required for undergrounding, even if the community that is directly affected supports the increased cost. This puts the Consumer Advocate in a difficult position. At the same time, there does not appear to be a public advocate specifically for those taxpayers directly affected by any tariff issues.

The lack of representation of the specifically affected community leaves those communities to fend for themselves. The proceedings before the PUC often include volumes of technical material that require various degrees of expertise to process and synthesize. This puts most members of the public at a disadvantage in formally opposing any proceedings.

Public sentiment is also obtained by the utilities through Community Advisory Councils. These councils are developed *ad hoc* by the utilities and meet as needed. The utilities attempt to ask a cross section of participants, allowing self-selection as to who participates from specific organizations. It is unclear, though, exactly how these community advisory councils' input is represented in material presented.[84]

The public sentiment concerning the utility process is also affected by distrust. Some of this distrust comes from lack of understanding and communication. The Hawaii PUC is the only state PUC without a public web page providing up-to-date information where the public can learn and monitor the goings on of the utilities.

Another source of the public distrust is the fact that all required documents are generated by the applicant utilities. The applicant utilities are required by law to provide the information that the state agencies will rely on to evaluate and make decisions.[85] This process is sanctioned and, therefore, bias is built into the process by law. The material presented by the applicant will naturally be slanted to the position they are attempting to achieve and perceived as tainted just as scientific research studies funded by specific organizations are viewed as suspect. Requiring a neutral party to collect information for evaluation would dispel some of the distrust.

6. Technological Issues

Issues related to technology require consideration from several angles. In any policy that promotes undergrounding, it is important to have flexibility that will incorporate opportunities to implement new technology. As technology improves, the cost to underground may decrease through new efficiencies and developments. Improved technology may also provide a method of

[84] Final EIS, supra note 64.

[85] Section 279-27.6(c) and section 343-5(b), Hawaii Revised Statutes.

delivering public utilities without wires. Hawaii is already experiencing this development in the telecommunications industry.

Providing flexibility to accommodate new technologies in an underground utility line program will help to ensure the recovery of any stranded costs that may be expended in earlier years of the program. Stranded costs are those capital costs incurred by utilities that are no longer useful but have not been fully amortized or recovered over the intended life of the project. Excessive stranded costs may inhibit new technologies from implementation in Hawaii.

Interference with radio and television waves from aboveground electric lines has been identified as an issue in determining where lines are placed, especially high-voltage electric lines. EMF emissions may affect the transmitting and receiving abilities of satellite dishes and television and radio antennas.

Technology in computers has been used as a counter argument to the need for providing a pristine natural environment if the movie industry is to continue in Hawaii. Computer technology has advanced to the point where utility lines can be removed with the click of a mouse by computer imagery software.

7. Legal Matters

Jurisdiction of Regulation. The City and County of Honolulu has been attempting to pursue the conversion of certain overhead utility wires to underground lines through special improvement districts. As part of that conversion the City and County proposed a pilot project that required part of the cost of the conversion to be borne by the utilities. The Public Utilities Commission testified against the bill establishing the pilot project for the conversion of the improvement district, claiming the City and County was preempted by the Public Utilities Commission from allocating costs to the utilities.[86] It is interesting to note that in the past the PUC has recognized county special improvement districts and approved capital costs expenditures by the utilities to underground in those areas. The conflict here is not that utilities should participate but where the authority lies for that decision.

The PUC states that it has exclusive jurisdiction to authorize utility allocation of funds that will increase the rate base. The county believes it has the authority to determine where the utility lines will go and the utility should participate in the cost of those lines. This is often the practice with PUC approval. The county believes that the PUC has authority for only the limited purpose of determining whether or not the utilities' expenditures can be recouped through

[86] Testimony of Yukio Naito, Chairperson, Public Utilities Commission, Department of Budget and Finance, State of Hawaii, presented to the Honolulu City Council, Committee on Environment and Public Works, April 21, 1998, Council Bill No. 44 (1998).

increased rates to consumers through its pre-approval process of capital expenditures greater than $500,000. There are arguments that support both the Public Utilities Commission and the City and County of Honolulu.

This relationship between counties and the state PUC has been handled exclusively by the PUC in California. The California PUC required the utilities to set aside between one and two percent of gross revenues annually for use by the counties in undergrounding projects. The PUC crafted criteria for the use of the funds that included requirements that the counties act through ordinances in establishing eligible areas for the funds. The Hawaii PUC currently has the authority to implement this kind of program.

To date, the PUC has not exercised any authority beyond the requirement to ensure that rates are "just and reasonable".[87] This has been interpreted in decisions by the commissioners to be the overriding concern above the value of aesthetics and effects of EMF,[88] social equity reasons.[89] That Decision and Order, 13201, filed in April 1994, was based on law that was in place before Act 133, Session Laws of Hawaii 1994 (approved in June 1994), which expanded the scope of the PUC's review. Under the current law to determine the undergrounding of high voltage lines of 44 kV or more, the PUC must consider:

(1) Whether there is a benefit that outweighs the costs to place the electric transmission system underground;

(2) Whether there is a governmental public policy requiring the electric transmission system to be placed, constructed, erected, or built underground and the governmental agency establishing the policy commits funds for the additional costs of undergrounding;

(3) Whether any governmental agency or other parties are willing to pay for the additional costs of undergrounding; and

(4) Any other relevant factors.[90]

This law does not change the authority of the PUC to establish, nor does it require the PUC to establish a compatible program with the county.

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[87] Section 269-16(a), Hawaii Revised Statutes (1993, 1998 supp.).

[88] In the matter of the Application of Hawaiian Electric Company, Inc., supra note 58, p.39.

[89] Ibid. p. 31.

[90] Section 269-27.6(a), Hawaii Revised Statutes (1993, 1998 Supp.).

The counties, through various ordinances, have been requiring residential and resort developers to place electrical distribution, telecommunications and cable lines underground in new developments for some time. This process has not been objected to because any additional costs incurred by the utilities for undergrounding are recouped from the developer who obtains the funds through the increased sale price of the housing. The City and County of Honolulu would like to apply the authority of this principle to the construction of new 138 kV lines by restricting permits for construction. The City and County cites many legal cases in the law supporting their position.[91]

The legal argument against the counties' authority to require undergrounding a new 138 kV line is the specific statute enacted in Act 133,[92] that requires the PUC to determine whether undergrounding is warranted. Ironically, the statute requires the PUC to recognize if any governmental policy requires undergrounding. What the county is trying to assert is a governmental policy for undergrounding. But the statute also requires provisions for funding and support of that policy. This is where the county argument breaks down. This is also where a clear intent from the Legislature could encourage the PUC to implement a program of cooperation with the county.

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[91] *State ex rel. Cleveland Electric Illuminating Co. v. City of Euclid*, 169 Ohio St. 476, 159 NE2d 756 (1959); *Benzinger, Police Judge, Et. Al. v. Union Light, Heat & Power Co.*, 293 Ky. 747, 170 SW. 2nd 38 (1943); *Union Electric Company v City of Crestwood*,499 SW2d 480 (1973); *Kahl et. al. v. Consolidated Gas, Elecric Light & Power Co. of Baltimore*,191 Md. 249, 60 A.2d 754 (1948); *In re Public Service Electrical Gas Company*, 35 NJ 358, 173 A.2d 233 (1961); *Central Maine Power Company v. Waterville Urban Renewal Authority*, 281 A.2d 233 (1971); *In the Matter of Sleepy Hollow Lake, Inc. et al. v. Public Service Commission of the State of New York*, 352 NY Supp 2d 274, 43 A.D. 2d 439 (1974); *Cleveland Electric Illuminating Co. v. Village of Mayfield*, 53 Ohio App. 2d 37, 371 NE 2d 567 (1977); *Arizona Public Service v. Town of Paradise Valley*, 125 Ariz. 447, 610 P. 2d 449 (1980).

[92] Act 133, Session Laws of Hawaii, 1994. Note that Act 133 was later amended by Act 95, Session Laws of Hawaii 1997, and Act 218, Session Laws of 1998 to read as it is quoted in Section 269-27.6, Hawaii Revised Statutes (1993, 1998 Supp.).

Summary

This report identifies many issues concerning the undergrounding of utility lines. Specific issues have greater importance to specific people. By identifying and discussing these issues the Bureau has uncovered several areas that may benefit from further attention. Measuring the intangible costs, allocating costs and resources, removing built-in bias from the process of information collection, and the clear expression of a state underground policy will allow a better opportunity to promote a common goal. These issues are examined further in the last chapter.

Chapter 3

OTHER JURISDICTIONS

The Bureau looked at how other jurisdictions handled policies and issues with regard to undergrounding utility lines. This chapter includes the results of LEXIS and internet searches, and discussions with various public utility commission representatives and officials. On the United States mainland, the focus of most state public utility issues is currently on the de-regulation of the electric industry, an issue that is outside the scope of this study. Generally, the authority in other jurisdictions to require underground lines, new or converted, was delegated or recognized by state authorities as a county or municipal level decision. The allocation of costs was varied and supported or mandated by public utility commissions.

Other States

A fifty-state search of LEXIS revealed few relevant hits.[93] Much of the regulation, if any at the state level, regarding developments is delegated to the county or municipal authorities.[94] Further investigation revealed that many states acted on these issues through their public utilities commissions, without formal legislation. Public utilities commissions in states across the country have exerted their authority over the independently owned utilities that are regulated monopolies in varying degrees. Identifying specific rules within state public utilities commissions can be more challenging. This task is made a little easier today because of the many websites that other state public utility commissions have established. Forty-nine states (all but Hawaii) have world wide web pages. A directory of these websites can be found at http://www.naruc.org/Stateweb.htm. Establishing these websites has allowed the regulating bodies to provide several forums that meet diverse needs. Consumers can learn general information as well as track upcoming issues, provide comments through e-mail, and download manuals that will teach them how to effectively participate in commission hearings.[95] The websites have been a valuable tool for the commissions by providing more service for less cost.

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[93] The terms and connectors Query in LEXIS run on July 2, 1999 as follows:

PR, CA, TE(UNDERGROUND!/S((UTILITY ELECTRIC!)/2 LINE!) (HIGH-VOLTAGE/3 TRANSMISSION/2 LINE!))% PR, CA(REPEALED RESERVED RENUMBERED)ST(DC GU PR VI)

[94] See Section 48-620 Arizona Revised Statutes Annotated (1988, 1998-1999 Supp.); Section 8.16, Article 66B, Michie's Annotated Code of Maryland (1957, 1998 Replacement Volume); Revised Code of Washington Annotated 36.88.430 (1991).

[95] See http://www.cpuc.gov for example.

Policy

Several states have statutorily declared clear policies on undergrounding utility lines. Other state policies usually focus on the public interest principles and relinquish authority of specific projects to the counties while still retaining jurisdiction of utility matters to the public utilities commission. A good example of a clearly stated policy on the conversion of aboveground lines to underground lines can be found in the Revised Code of Washington:

> *Underground electric and communication facilities, installation or conversion to-Declaration of public interest and purpose. It is hereby found and declared that the conversion of overhead electric and communication facilities to underground facilities and the initial underground installation of such facilities is substantially beneficial to the public safety and welfare, is in the public interest and is a public purpose, notwithstanding any resulting incidental private benefit to any electric or communication utility affected by such conversion or installation.*[96]

Costs

The allocation of costs for conversion programs is also varied across states and may exclude high voltage transmission lines. Many states have adopted undergrounding programs that reflect current laws and ordinances already in place here in Hawaii. Both in Hawaii and in Montana, through county-established community facility districts or special improvement districts authorized by statute,[97] the counties can assess the cost of undergrounding to property owners. The State of Maryland authorizes the counties to define underground districts[98] but imposes a limitation on the costs to a utility to fifty percent.[99] By limiting the costs, utilities can contribute to the conversion of utility lines, and the public utilities commission retains control over the regulation of rates.

The State of California has been managing a program of conversion of overhead lines for thirty years. The program requires the utilities to set aside a small percentage of gross revenues for use by counties in undergrounding utility lines. Counties could be eligible for funds based on the number of above ground meters in the designated undergrounding district. Based on certain criteria some locations were eligible for one hundred percent funding, other locations required property owners to contribute to the total cost of construction.

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[96] Section 36.88.410, Revised Code of Washington.

[97] Section 46-77, Hawaii Revised Statutes; Section 69-4-302, Montana Code Annotated.

[98] Section 8.16, Article 66B, Annotated Code of Maryland.

[99] Section 4-209, Annotated Code of Maryland.

The California Public Utilities Commission (CPUC) instituted this voluntary underground conversion program for distribution wires in Decision 73078 in 1967. The undergrounding tariffs[100] for the electricity and telephone companies have been in effect since January, 1968. The 1967 CPUC decision required the utilities to contribute two percent of revenues to a conversion fund that would provide for the systematic undergrounding of distribution wires. A copy of this rule as it relates to Pacific Gas & Electric in California appears in Appendix F. Districts were selected for conversion by county ordinance. The program is considered voluntary because counties have an option to participate through ordinance. Any utility funds that are not committed to projects within set time limits by county ordinance in accordance with the CPUC rules are released back to the utility. This program has committed utility funds for conversion that are above the cities and counties requirements through their police power and above the amounts committed for the convenience of the public utility. The structured setting aside of funds for undergrounding utility wires has allowed cities and counties in California to have an orderly plan of undergrounding that has been successful throughout California. The League of California Cities, Pacific Gas & Electric Company and Pacific Bell, have produced a manual to assist government entities with the conversion plan. A copy is available at the Bureau Library. In the thirty years during which the conversion program has been in existence, $1.7 billion of $2.2 billion allocated has been spent on undergrounding utility lines.[101]

Alaska currently has no law, but legislation was introduced following California's lead to require a certain percentage of revenues to be set aside toward undergrounding. Senate Bill 10, 1999 Regular Session, which passed the Senate, would require utilities operating in cities with a population of 200,000 or more (Anchorage) to spend at least 1 per cent of gross revenues to underground their cables.[102]

Specific Locations

Each state has addressed the issue with its special considerations in mind. The State of Delaware has had a policy, similar to those of local counties in Hawaii, requiring utility lines to be underground in new subdivisions or multi-occupancy buildings of five or more lots since July 7, 1970. It also authorizes the utilities the power of eminent domain to obtain rights of ways.[103]

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[100] Tariff Rule 20 and Tariff Rule 32, California Public Utilities Commission.

[101] Telephone conversation with Bill Gaffney, Public Utility Regulation Analyst II, California Public Utilities Commission, July 23, 1999.

[102] The progress of SB 10 can be followed at: http://www.legis.state.ak.us/basis21.htm.

[103] Section 901, Delaware Code.

Colorado prohibits the placement of above ground lines around telecommunications research facilities. State law requires any subdivision development within a two-mile radius of a telecommunications research facility of the United States to include a covenant in the plat or re-zoning request that "all electrical distribution lines and service lines and all telephone lines shall be placed underground."[104]

Oregon does not have specific statutes related to undergrounding, but does have specific statutes dealing with siting utility facilities in rural areas. Any conversions in these areas likely would be subject to these siting statutes.[105]

Environmental Issues

New York State requires all major transmission facilities, including high-voltage lines to obtain a certificate of environmental compatibility and public need before any facility can begin the preparation of a site for construction.[106] New York State law also requires the Public Utilities Commission to find and determine the basis of the need for the facility; the nature of the probable environmental impact; that the facility represents the minimum adverse environmental impact; what portions will be underground; and how the facility relates to long-term plans.[107] The findings required under New York law are similar to those in section 269-27.6, Hawaii Revised Statutes. Both essentially direct the commissions to respond to concerns stated in previous decisions and orders issued. One difference is that the New York law specifies that the facility represent the minimum adverse environmental impact.

California takes the environmental issue one step farther. The California Environmental Quality Control law establishes a specific division within the California Public Utilities Commission that completes all environmental assessments and impact statements and bills the applicant for the cost. This removes the inherent bias (or at least appearance of bias) of having the applicant complete the environmental assessment or impact statement. The assessment or impact statement is more likely to be (or be perceived to be) independent and a trusted reflection of the environmental impact. This independent review of the environmental picture adds integrity to the process.

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[104] Section 30-11-605, Colorado Statutes.

[105] See, sections 215.283 (1)(d) and (L), (2)(f) and (L), Oregon Revised Statutes.

[106] Section 121, Public Service Law, New York State Consolidated Laws.

[107] Section 126, Public Service Law, Consolidated Laws of New York.

Another approach to the environmental issues taken by some states includes limitations on magnetic strengths (EMF emissions). Seven states, Montana, Minnesota, New Jersey, New York, North Dakota, Oregon and Florida have formally adopted standards to limit the permissible magnetic strength along public rights of way.[108] No standards have been adopted by the federal government or recognized by the State of Hawaii.

Along a similar line of concern for electromagnetic field emissions, Sweden has adopted a standard for magnetic field for video display terminals of 2.5 milligauss (mG) at a distance of 50 centimeters (about 18 inches) from the terminal which has become a de facto standard in the VDT industry.[109]

U.S. Department of Defense in Hawaii

The Department of the Air Force states that the policy at Hickam Air Force Base is to locate all new electric, telephone, and cable television lines underground and to relocate such existing utilities from overhead to underground.[110]

The Department of Defense participated in early California hearings on undergrounding and supported undergrounding of lines in the furtherance of beautification but believed the cost should be borne by the user.[111] This position was confirmed by current Department of Defense personnel. The Department of Defense is one of the largest customers of the electric utilities in Hawaii.

Summary

Other jurisdictions have instituted policies regarding undergrounding conversion programs as well as the placement of high-voltage facilities. The legislation has recognized the importance of the local community input by delegating some authority to county and municipal governments. At the same time, the states are mindful of the role of public utility commissions and the need to regulate rates. States that have adopted policies have chosen to balance their

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[108] Limits range from 1 kV/m at the edge of the right-of-way in residential areas in Montana to 10 kV/m (for 500 kV) maximum in the right-of-way in Florida. See table in "Electric and Magnetic Fields from 60 Hertz Electric Power" United States Environmental Protection Agency, Office of Air and Radiation (ANR-459), 21A-4001, February 1991, p. 15.

[109] "Electric Magnetic Fields in Your Environment", United States Environmental Protection Agency Office of Radiation and Indoor Air (6603J); Doc. #402-R-92-008, December 1992; p. 9 of 13, as downloaded from http://faculty.millikin.edu/~jaskill.nsm.faculty.mu/emfGOV.html on June 3, 1999.

[110] Libbey, Jr., Roland D., supra note 36, p. 3.

[111] Decision No. 73078, Case No. 8209, Before the California Public Utilities Commission, 1967, pp. 27 and 28.

needs with environmental concerns in a variety of methods when it comes to cost. The diversity of approaches indicates that there are several paths to take in seeking solutions. It should also be noted that many of the efforts in other jurisdictions' actions did not require extensive legislation so much as gentle guidance to the utilities commissions as to community and legislative preferences.

Chapter 4

ALTERNATIVE POLICIES

Theory

It is important to recognize that the regulation of a monopoly is part science and part art. Regulating utilities through a public utilities commission is by design imperfect, in Hawaii or any other state with regulated utilities. Built into the essential goals of the process is an intense conflict that necessarily creates a situation of give and take and constant re-balancing of priorities.

> *There are at least four goals of regulation: control of monopoly, protection of consumers, substitution for competition, and social allocation. This last goal, social allocation, seems to have two conflicting subgoals, namely, allocation for efficiency and allocation for ecological protection.*[112]

The rapid development of the global technology and economy creates a more urgent need to fine-tune the focus of utility regulation and bring more coordination of the growing and diverse interests of the parties involved. This may not be an easy task, but a necessary one if utility regulation is to operate with enough satisfaction to please these different interests.

Procedurally, the process has built-in shortcomings that must be addressed and balanced. Those procedural shortcomings include:

(1) The fact that the adversarial proceeding itself is often lengthy and expensive, and usually produces a winner and a loser. Regardless of the result, the cost to the consumer usually increases either in higher rates or higher taxes;

(2) There is generally an imbalance of power, the utility having more resources to draw upon than the commission or the community;

(3) Partiality is built into the system when the Commission plays both adversary and judge and jury; and

(4) The process is produced by regulatory lag, that is, a utility has to be able to prove its disintegrating profits before it can appeal to the Commission.

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[112] Farris, Martin T, and Sampson, Roy J. *Public Utilities, Regulation, Management and Ownership,* Houghton Mifflin Company, Boston , 1973, p. 155.

Despite these shortcomings, the process provides a better outcome than allowing a monopoly to operate in a community without regulation. Some of these concepts are subject to change as deregulation moves into a particular field but a discussion on utility deregulation is beyond the scope of this study.

Process

Operationally, much of the initial process in Hawaii proceeds outside the jurisdiction of the Public Utilities Commission. Utilities attempt to secure the necessary permits, easements, and rights-of-way required for any development before opening a docket at the PUC. An example of this is the proceedings surrounding the Environmental Impact Statement (EIS) for the Kamoku-Pukele high-voltage transmission line proposed aboveground over conservation district land on Waahila Ridge. The Department of Land and Natural Resources requires a permit for any use on conservation district land which includes the preparation of an EIS. Despite claims from Hawaiian Electric Company that community input was considered, there appears to be a considerable amount of objection to the proposed line from the several communities involved. Additionally, the hearings on the EIS should be focused on the degree of impact to the conservation land, but many of the comments focus on whether the line is needed at all.

Although hearings are held on the placement of facilities before the Department of Land and Natural Resources, the PUC has not yet formally determined whether there is a need for the facility. In the foregoing example of the Kamoku-Pukele line, the issue of need and its approval may already be assumed by the utility because of previously completed phases of the project to complete a “Ring of Reliability”.

This process of allowing a utility to proceed on the permitting phase of a facility that has not yet been approved by the PUC seems to put the cart before the horse. Even in some instances where it may appear that the authorization for the need of a project is evident, without a formal proceeding there is no opportunity to contest the need, before the utility spends what could be substantial time and funds on determining the placement of the facility.

Only when the utility has secured all permits does it make an application to open a docket at the PUC requesting approval for its capital improvement project greater than $500,000. During the PUC hearing process the utility must show a need for the project and that the capital project is reasonable. The utility must also report on the particular items required by law, especially for electric utilities applying to install high-voltage electric lines. The Consumer Advocate will make a recommendation on the project. Up to this point in the process, much of the public sentiment has been voiced in either private advisory meetings or at public hearings related to a utility obtaining a permit. While some of the public comments may have been responded to, there is a general distrust of the process when the public believes that their comments have not been accommodated, either openly or in the material presented for review.

Once the docket is opened, the PUC may have a public hearing under some circumstances. While notice is required under law, actual notice to people who may be affected is irregular. Even with notice, the public's participation is limited because the quality of their representation is limited. The opportunity does not exist for the public to represent themselves in an intelligent and effective manner if their position differs from the Consumer Advocate. The Consumer Advocate represents consumers generally, not specific segments of the consuming public. The very nature of the process puts consumers whose positions differ from the Consumer Advocate at a disadvantage. Often, this imbalance of power makes it difficult for those consumers to make an effective presentation. After the evidentiary hearings, a decision and order is issued by the PUC which relies heavily on material presented, of which much is supplied by the applicant and the law. The decisions and orders of the PUC indicate that the Commissioners' interpretation of their task to ensure all rates, charges, classifications, schedules, rules, and practices made, charged, or observed are "just and reasonable" means, most importantly, "least reasonable cost."

Alternatives

One of the Legislature's roles is to establish the policies and direction of the State through enactment of law. Working within the existing general state policies as well as current law, it is important to develop a policy for undergrounding utility wires that is compatible with the scheme of laws that already exist. With regard to the policy on undergrounding of utility wires, there is no clear directive. Instead of approaching the topic from a broad and general perspective, the law presently identifies specific issues of conflict but does not set any standards. The law is incomplete in its guidance to the PUC. This situation could be a springboard for an active PUC to adopt programs and requirements that promote progressive projects in the State. The incomplete nature of the law could also cripple the PUC by limiting the agency's perception of its scope and authority. In this State today, the situation is closer to the latter than the former.

Valuing Non-tangibles

The incomplete law that makes unclear policy on undergrounding focuses on the current treatment of high-voltage electric lines.[113] The law requires the PUC to weigh the benefits against the costs of undergrounding lines, but sets no standards with regard to the value of benefits. Without a standard, the value of those benefits cannot be compared to costs.

The Legislature can choose to set standards in several ways. It can state the standard clearly in the law. An extreme but illustrative example would be adding a new provision to the Public Utilities Commission Law that states:

[113] Section 279-27.6, Hawaii Revised Statutes (1993, 1998 Supp.).

> *The policy of the State is to value the aesthetics of the natural landscape above all else.*

In that stated policy above, the benefits of undergrounding utility wires would always outweigh cost. That same statement of policy could be limited to certain locations, for example:

> *The policy of the State is to value the aesthetics of the natural landscape in conservation districts above all else.*

Stating the policy is the most straightforward way to provide guidance to the PUC with regard to valuing benefits of undergrounding utility lines.

The Legislature may also allow standards to be developed. This approach follows other directives in the planning law requiring the:

> *…reasonably comprehensive, quantitative, and qualitative accounting of long-term, direct and indirect economic, environmental, social, cultural, and public health costs and benefits;*[114]

The value of benefits from undergrounding utilities is discussed at length in Chapter 2 of this report with respect to costs to consumers. Providing a method for measuring the externalities, and an opportunity for the proper valuation of the particular items the law requires the PUC to consider, is essential to an accurate evaluation of the significant items identified in the law; i.e., quantifying benefits and other intangible items listed in section 269-27.6(b), Hawaii Revised Statutes. If the PUC is to consider areas other than cost, then the Consumer Advocate must have data and information of this nature in order to respond to material presented by the applicant. This material could be obtained by contracting with experts in the field through a Request for Proposal administered by the Consumer Advocate. This could be accomplished by an appropriation to the Division of the Consumer Advocate to measure the externalities involved with evaluating the benefits and other intangible items in relation to the costs of undergrounding lines. In discussions with the utilities and related government agencies, the estimated cost of a similar type of study completed as part of the Integrated Resource Plan in July 1997 was as high as $1,000,000. After negotiation, adjustment, and use of in-house employment the estimated cost for a study like this ranges between $500,000 and $700,000. Depending upon the scope of the project, the information obtained from this type of study could have a shelf life of five to ten years. Having the measurement conducted by someone other than the applicant would provide an independent review of the material.

[114] Section 226-18(c)(3), Hawaii Revised Statutes (1993, 1998 Supp.).

Independent Review

The expectation of an independent review of proceedings by a public utility commission can be unreasonable. The budget for a public utility commission is a fraction of what is available to utilities and is financed through fees paid by the utilities. Limited budgets lead to fewer staff members who are both overworked and underpaid, and without access to experts. This situation operationally forces the Public Utilities Commission to rely on material presented by the utilities. With Hawaii law requiring the applicant "to clearly and fully state and support its evaluation of each factor"[115] that the PUC is required to consider in undergrounding, it is clear that, both procedurally and operationally, there is a potential bias, whether real or perceived, built into the process.

The opportunity for independent review is also absent earlier in the process when utilities are attempting to obtain permits for facilities and infrastructure. The law requires applicants for permits to use conservation district land to conduct their own environmental impact statements. This potential built-in bias appears to be the root of the distrust of the utility proceedings by some concerned citizens. Without real independent review it is difficult for people to trust that the proceedings have been handled fairly, openly, and with consideration of their interests.

There are several ways to remove some of the potential bias that is written into the law. As discussed above, giving the proper tools to the Consumer Advocate to make a complete and thorough review would help to ensure that a more balanced presentation of the issues required by section 269-27.6, Hawaii Revised Statutes, is made before the PUC. In addition, requiring the Office of Environmental Quality Control (OEQC), rather than the applicant, to conduct environmental impact statements for utilities or other independent entities that operate utility facilities when applying for permits will provide a greater perception of integrity to the information presented. Legislation similar to this was introduced in 1995 in a broader scope. Limiting the independent review requirement to utilities or independent entities operating utility facilities would be a more manageable task for the OEQC than a blanket requirement of independent review. The cost of the EIS performed by the OEQC either internally or by contracting out to consultants could be billed to the applicant so there would be no additional cost to the State.

The EIS part of the process that often precedes any formal hearing is not necessarily conducted with the authorization of or oversight by the PUC. Requiring any utility that makes an application for a conservation district use permit to include an authorization of need for the facility by the PUC would effectively bifurcate the current PUC hearing process. Utilities would be required to approach the PUC before large amounts of money are expended on environmental

[115] Section 269-27.6(c), Hawaii Revised Statutes, (1193, 1998 Supp.).

impact statements for facilities that may not be approved.[116] Bifurcating the process to establish need also limits the scope of issues at each hearing and provides an additional opportunity for cooperation early in the proceedings.

Participation and Open Communication

Quality consumer participation in the hearing process may be the most valuable asset to the PUC in promoting a settlement to a contentious proceeding. If the State wants to provide an opportunity for quality, intelligent, and effective participation by the public in the process, then measures need to be taken to provide tools to even the playing field. Simply allowing consumer groups to intervene in PUC proceedings where the consumer's specific interest or concern is not presented by the Consumer Advocate is not enough. These intervening consumers must be given some tools to proceed intelligently and opportunities to be compensated when they contribute significant information to a proceeding. The State of California has an intervenor compensation law that qualifies certain parties to receive reimbursements of their costs incurred in the process. The California intervenor law is explained in a *Guide for PUC Intervenors 99.*[117] The PUC has allowed compensation for intervenors in the past but only in the development of the Integrated Resource Plan Framework in Public Utilities Commission Docket No. 6617. This process was used to pay the Natural Resources Defense Council who made significant contributions to that collaborative effort. The PUC could develop a program that encourages quality participation of this sort by intervenors.

The distrust of the proceedings that is expressed in the general public sentiment is also compounded by lack of understanding and non-communication. The proceedings of the PUC are very mysterious to most people. In this time of widely available electronic communications, a public agency such as the PUC should provide at least minimal information on the world wide web. Many states have developed interactive sites that educate and inform people of the issues and how consumers can participate in the proceedings.[118] Developing a resource for consumers that is easily accessible is the first step in bridging the communication gap and providing helpful information.[119] The decisions and orders of the PUC are not published nor are they indexed in any way by topic or subject matter, so it is almost impossible for someone unfamiliar with the process to try and understand how the PUC has ruled in the past in similar situations. This limits

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[116] The PUC does already have the authority to require this of the utilities but has not affirmatively taken action to restrict a utilities' ability to expense development of possible facilities before the need for those facilities is confirmed.

[117] http://www.cpuc.ca.gov/interven99/Default.htm.

[118] See http://www.cpuc.gov/ for example.

[119] It should be noted that the PUC has just developed a web page available at http://www.state.hi.us/budget/ and can be reached by e-mail at hipuc@lava.net.

the access to materials that are public documents. When there is limited access to documents there can be little understanding of the proceedings, which, in itself, may breed distrust.

Settlement

The Legislature, Public Utilities Commission, and many in the community have struggled with the concept of underground and overhead high-voltage transmission wires for many years. As Mr. T. Michael Mays, President and Chief Executive Officer of Hawaiian Electric Company, espoused recently in an editorial in *The Honolulu Advertiser*, "…there are no more easy problems to solve in Hawaii. Only the hard ones are left."[120] In recent years there has been much time and money spent by competing interests in the quest to have reasonably priced, reliable electricity service that is safe, while at the same time preserving the natural beauty of the islands. It is clear that to handle these difficult problems successfully, collaboration of the parties should be of the highest concern.

At a recent conference at the University of Hawaii at Manoa, the keynote speaker, Dr. Lawrence Susskind, proposed a method of mutual gains that is geared to empower communities when important values collide.[121] Essentially, he stated that settlement in areas where values are different can only be resolved if the interests of and concerns of separate parties are handled collectively. Dr. Susskind's proposal encourages a process of consensus building that uses joint fact finding, focuses on the problem rather than the legal issue or hook that may be brought to court, and allows a neutral party to facilitate the plan and meetings. A critical element of the success of the program is that all stakeholders participate. The method assumes that fights will occur, and also requires the inclusion of creative ideas to find effective ways to deal with the differences without compromising important values. This type of settlement proceeding is not proposed to replace the hearing process, only to supplement it.

Pursuing settlement in the regulated utility environment can be a valuable tool in reducing the workload of the PUC and may bring about more acceptable results to the parties than could be achieved through the formal hearing process. Legislation that requires a utility to first engage in formal settlement operations in good faith before any hearing can proceed would create an opportunity for settlement early in the proceedings.

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[120] T. Michael Mays, "Who will pay the extra cost?", Island Voices, *The Honolulu Advertiser*, June 26, 1999.

[121] "Empowering Community: When Values Collide" Sponsored by the Department of Urban and Regional Planning, University of Hawaii at Manoa, Malama o Manoa, the Safe Power Action Network, and the Wallace Alexander Gerbode Foundation of California, August 28, 1999, University of Hawaii at Manoa, Architecture Auditorium.

Conversion

The trend throughout the United States and here in Hawaii appears to support the undergrounding of utility lines. The barrier is always, and always will be, funding. In other states, both informally and formally, the majority of conversion programs are led at the municipal and county levels with support and guidance from state public utility commissions. Successful programs provide opportunity for planning projects with regular, steady funding from all parties involved. The PUC may provide a mandatory structure for utilities to participate in the funding but allocate control of project planning and a percentage of funds to the counties or municipalities. This provides avenues for the specific communities to pursue the conversion of overhead lines to underground as they choose. This type of policy also does not affect those communities that choose not to have a conversion program. Developing a conversion program that provides flexibility to the areas converted, has a steady source of funds and includes contributions from private property owners where appropriate, allows communities to make their own decisions within an acceptable framework. This is the type of program that California has experienced success with for thirty years. Modeling a similar program in Hawaii would authorize the counties to develop conversion programs as they see fit, to the extent of available funding.

Another approach to setting up a conversion program is to establish an undergrounding fund administered by the PUC. The fund would be the depository of legislative appropriations and other assorted revenues that could include volunteer contributions through an income tax return checkoff, and rounding up of utility bills,[122] as well as funds that the PUC requires the utility to contribute. The PUC could set up similar guidelines that would allow the counties access to a percentage of funds based on criteria established by the PUC as in the program above. This type of funding method is not as predictable and would not provide the stability of planning that the other mandatory program ensures.

Safety

Last but not least, the undergrounding of utility wires presents new safety issues that need to be addressed today because underground lines already exist. Many states have a mandatory "Call Before You Dig" program that requires utilities to participate in a program that monitors the underground infrastructure. Monitoring the underground infrastructure and providing one place to call before digging commences, minimizes the chance that underground lines will be damaged accidentally by excavation. Some utilities already participate. Implementing mandatory one-call legislation is a good way to protect current underground lines as well as future underground lines.

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[122] As explained in chapter 2 of this report.

Recommendations

Based on the substance and analysis of the issues in this report, the Bureau makes the following recommendations in evaluating whether utility lines should be underground and the conversion of existing overhead to underground lines.

Underground Wires

1. Provide the necessary tools to carry out the current law regarding high voltage electric lines by:

    (a) Articulating the value of the benefits of undergrounding and other non-tangible items; *or*

    (b) Appropriate funds to the Consumer Advocate to quantify them by measuring the externalities.

2. Attempt to alleviate the distrust in the public sentiment by removing some of the built-in bias issues by authorizing the Office of Environmental Quality Control to administer independent environmental impact statements for all permit applicant utilities and bill the costs to the utility applicants.

3. Bifurcate the process of authorizing capital projects by separating need and reasonable route or location of facilities or infrastructure, by requiring a utility to obtain formal authorization of need for a capital cost above $500,000 to be completed before any permits can be issued to utilities for proposed uses.

4. Require utilities to participate in good faith, in settlement proceedings before formal hearings are held. The issues in the settlement proceedings may be broader in scope than the issues before the PUC in order to reach a satisfactory settlement that includes all stakeholders.

5. Involve community members in the process more actively by requiring the PUC to:

    (a) Develop a web page that educates and informs about the PUC activities, processes and procedures, including active and pending utility dockets, and provides opportunity for consumers to make comments.

    (b) Establish a standard intervenor program within the PUC that assists consumers who have significant information to contribute that is outside

the scope of the Consumer Advocate's role, and offers some compensation for their significant contributions made.

6. Protect underground wires by establishing a mandatory one-call system.

Conversion

Either:

(a) Direct the PUC to establish a program of converting overhead lines to underground lines that requires utilities to set aside funds to be available to counties for a period of time. If within that period of time, a county passes an ordinance to establish an undergrounding district, the county would be eligible to use a relative percentage of the available funds. The PUC may set rules and criteria that control eligibility for the program and availability of funds, and the contributions required of consumers as any undergrounding projects relate to privately owned property; or

(b) Both:

1. Establish an undergrounding fund administered by the PUC into which funds may be deposited by:

   A. Legislative appropriation;

   B. Voluntary contributions from income tax returns checkoffs;

   C. Rounding up of utility bills; and

   D. Utilities, as authorized or directed by the PUC; and

2. Authorizing the counties to take the lead in undergrounding and assisting them by establishing a clear authority in compliance with PUC requirements for cost allocations in special improvement districts from the undergrounding fund.

Sample legislation is included for these recommendations in the Appendices.

Appendix A

THE SENATE
TWENTIETH LEGISLATURE 1999
STATE OF HAWAII

S.C.R. NO. 30 S.D. 1

SENATE CONCURRENT RESOLUTION

REQUESTING THE LEGISLATIVE REFERENCE BUREAU TO CONDUCT A POLICY AND ISSUE STUDY CONCERNING THE UNDERGROUNDING OF OVERHEAD UTILITY FACILITIES.

WHEREAS, there is increasing community interest in the placement of existing and proposed overhead utility facilities underground for a vairety of reasons including, but not limited to, public health concerns related to electric and magnetic field (EMF) exposure, public safety concerns related to windstorm, debris, and traffic collision damage risks, expectations of greater systems reliability and reduced maintenance needs, and the desire to preserve, protect, and enhance viewplanes and scenic resources for residents, visitors, filmgoers worldwide; and

WHEREAS, the recovery of Kauai following Hurricane Iniki was slowed in part due to downed utility lines and poles; and

WHEREAS, there are many communities within as well as outside the state which have successfully converted from overhead to underground utility facilities; and

WHEREAS, there are also disadvantages to undergrounding overhead utility facilities; now, therefore,

BE IT RESOLVED by the Senate of the Twentieth Legislature of the State of Hawaii, Regular Session of 1999, the House of Representatives concurring, that the Legislative Reference Bureau is requested to conduct a policy and issue study concerning the undergrounding of overhead utility facilities, including:

(1) The identification and compilation of a preliminary list of the statewide issues involved, including, but not limited to: alternative policy choices, legal issues, cost apportionment, resource allocation, land use, public safety, civil defense planning, public health, environmental conditions, technological issues, impact on tourist industry, aesthetic impressions, and overall impact upon quality of life;

(2) The compilation of a SURVEY of federal, state, and major metropolitan area (county and municipality)

policies and statutes or ordinances concerning the placement of utility facilities; and

(3) The identification of alternative processes for collecting information, including appropriate representatives of various constituencies and the public-at-large, and addressing the fundamental issues involved in evaluating whether undergrounding of existing and proposed overhead utility facilities should be required and if so under what conditions; and

BE IT FURTHER RESOLVED that these alternative processes may include recommendations regarding the following:

(1) The establishment of an appropriate interagency or interdisciplinary planning group;

(2) The coordination of existing planning resources for both short-term evaluation and long-term implementation; and

(3) The methods and opportunities. for input by the community including rate-payers, business, and government at the state and county level;

and

BE IT FURTHER RESOLVED that the Legislative Reference Bureau in conducting the study consult with appropriate government and private entities, including but not limited to, the Public Utilities Commission, the State Departments of Transportation, Defense, and Business and Economic Development and Tourism, the State Consumer Advocate; the county governments, the City and County of Honolulu Department of Transportation Services, the Neighborhood Commission, Hawaiian Electric Company, the Kauai Electric Company, GTE Hawaiian Telephone Company, Oceanic Cable, the Outdoor Circle, the Sierra Club Hawaii, Life of the Land and a representative of small business; and

BE IT FURTHER RESOLVED that the Legislative Reference Bureau submit its findings and recommendations to the Legislature not more than twenty days prior to the convening of the Regular Session of 2000; and

BE IT FURTHER RESOLVED that certified copies of this Concurrent Resolution be transmitted to the Legislative Reference Bureau, the Public Utilitie Commission the State Departments of Transportation, Defense, and Business and Economic Development and Tourism, the State Consumer Advocate, the county governments, the City and County of Honolulu Department of Transportatio Servicesthe Neighborhood Commission, Hawaiian Electric Company, th Kauai Electric Company, GTE Hawaiian Telephone Company, Oceanic Cable, the Outdoor Circle, the Sierra Club Hawaii and Life of the Land.

I hereby certify that the foregoing is a true and correct copy of Senate Concurrent Resolution No. 30 SD1, which was duly adopted by the Senate of the State of Hawaii on April 15, 1999, with the concurrence of the House of Representatives dated: May 5, 1999

Assistant Clerk of the Senate

JOHN WAIHEE
GOVERNOR OF HAWAII

JOHN C. LEWIN, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HAWAII 96801

In reply, please refer to:
HEFA OFFICE

DOH POLICY RELATING TO ELECTRIC AND MAGNETIC FIELDS *FROM* POWER-FREQUENCY SOURCES

January 19, 1994

The Department of Health, in response to continuing but inconclusive scientific investigation concerning electric and magnetic fields (EMF) from low-frequency *power* sources, recommends a "prudent avoidance" policy. "Prudent avoidance" means that reasonable, practical, simple, and relatively inexpensive actions should be considered to reduce exposure.

A cautious approach is suggested at this time concerning exposure to electric and magnetic fields (EMF) around low-frequency sources, such as electric appliances and power lines. The existing research data on possible adverse health effects, including *cancer, are* inconclusive and not adequate to establish or quantify a health risk. For example,- the biological mechanisms that might underlie any apparent relationship *between EMF* and cancer have yet to be clearly defined. Also, some epidemiological studies suggest that, if these fields increase the risk of cancer, it is a very small increase. other epidemiological studies suggest that there is no increased *risk.*

The Department of Health will continue to collect and evaluate information on possible health hazards associated with electric and magnetic fields. *If* adequate data ever become available to establish what levels may be harmful, appropriate standards will be established.

Appendix E

NOT AVAILABLE

On

PDF Version

Pacific Gas and Electric Company
San Francisco California

Revised Cal. P. U. C. Sheet No. 11239-E
Cancelling Revised Cal. P.U.C. Sheet No. 7854E

RULE 2O-REPLACEMENT OF OVERHEAD WITH UNDERGROUND ELECTRIC FACILITIES

A. PG&E will, at its expense, replace its existing overhead electric facilities with underground electric facilities along public streets and roads, and on public lands and private property across which rights-of-ways satisfactory to PG&E have been obtained by PG&E, provided that:

1. The governing body of the city or county in which such electric facilities are and will be located has:

   a. Determined, after consultation with PG&E and after holding public hearings on the subject, that such undergrounding is in the general public interest for one or more of the following reasons:

      1) Such undergrounding will avoid or eliminate an unusually heavy concentration of overhead electric facilities;

      2) The street or road or right-of-way is extensively used by the general public and carries a heavy volume of pedestrian or vehicular traffic; and

      3) The street or road or right-of-way adjoins or passes through a civic area or public recreation area or an area of unusual scenic interest to the general public.

   b. Adopted an ordinance creating an underground district in the area in which both the existing and new facilities are and will be located requiring, among other things, (1) that all existing overhead communication and electric distribution facilities in such district shall be removed, (2)that each property served from such electric overhead facilities shall have installed in accordance with PG&E's rules for underground service, all electrical facility changes on the premises necessary to receive service from the underground facilities of PG&E as soon as it is available, and (3) authorizing PG&E to discontinue its overhead service.

(Continued)

RULE 20-REPLACEMENT OF OVERHEAD WITH UNDERGROUND ELECTRIC FACILITIES (Continued)

A. (Cont'd.)

2. PG&E's total annual budgeted amount for undergrounding within any city or the unincorporated area of any county shall be allocated as follows:

   a. The amount allocated to each city and county in 1990 shall be the highest of:

      1) The amount allocated to the city or county in 1989, which amount shall be allocated in the same ratio that the number of overhead meters in such city or unincorporated area of any county bears to the total system overhead meters; or

      2) The amount the city or county would receive if PG&E's total annual budgeted amount for undergrounding provided in 1989 were allocated in the same ratio that the number of overhead meters in each city or the unincorporated area of each county bears to the total system overhead meters based on the latest count of overhead meters available prior to establishing the 1990 allocations; or

      3) The amount the city or county would receive if PG&E's total annual budgeted amount for undergrounding provided in 1989 were allocated as follows:

         a) Fifty percent of the budgeted amount allocated in the same ratio that the number of overhead meters in any city or the unincorporated area of any county bears to the total system overhead meters; and

         b) Fifty percent of the budgeted amount allocated in the same ratio that the total number of meters in any city or the unincorporated area of any county bears to the total system meters.

(Continued)

RULE 20--REPLACEMENT OF OVERHEAD WITH UNDERGROUND ELECTRIC FACILITIES
(Continued)

A. (Cont'd.)

2. (Cont'd.)

b. Except as provided in Section 2.c., the amount allocated for undergrounding within any city or the unincorporated area of any county in 1991 and later years shall use the amount actually allocated to the city or county in 1990 as the base, and any changes from the 1990 level in PG&E's total annual budgeted amount for undergrounding shall be allocated to individual cities and counties as follows:

1) Fifty percent of the change from the 1990 total budgeted amount shall be allocated in the same ratio that the number of overhead meters in any city or unincorporated area of any county bears to the total system overhead meters; and

2) Fifty percent of the change from the 1990 total budgeted amount shall be allocated in the same ratio that the total number of meters in any city or the unincorporated area of any county bears to the total system meters.

c. When a city incorporates, resulting in a transfer of utility meters from the unincorporated area of a county to the city, there shall be a permanent transfer of a prorata portion of the county's 1990 allocation base referred to in Section 2.b. to the city. The amount transferred shall be determined:

1) Fifty percent based on the ratio that the number of overhead meters in the city bears to the total system overhead meters; and

2) Fifty percent based on the ratio that the total number of meters in the city bears to the total system meters.

When territory is annexed to an existing city, it shall be the responsibility of the city and county affected, in consultation with the Utility serving the territory, to agree upon an amount of the 1990 allocation base that will be transferred from the county to the city, and thereafter to jointly notify PG&E in writing.

(Continued)

RULE 20-REPLACEMENT OF OVERHEAD WITH UNDERGROUND ELECTRIC FACILITIES
(Continued)

A. (Cont'd.)

2. (Cont'd.)

d. However, Section 2 a, b, and c shall not apply to PG&E where the total amount available for allocation under Rule20-A is equal to or greater than 1.5 times the previous year's statewide average on a per customer basis. In such cases, PG&E's total annual budgeted amount for undergrounding within any city or the unincorporated area of any county shall be allocated in the same ratio that the number of overhead meters in the city or unincorporated area of any county bears to the total system overhead meters.

e. The amounts allocated in accordance with Section2 a, b, c, or d may be exceeded where PG&E establishes that additional participation on a project is warranted. Such allocated amounts may be carried over for a reasonable period of time in communities with active undergrounding programs. In order to qualify as a community with an active undergrounding program the governing body must have adopted an ordinance or ordinances creating an underground district and/or districts as set forth in SectionA. .b. of this Rule. Where there is a carry-over, PG&E has the right to set, as determined by its capability, reasonable limits on the rate of performance of the work to be financed by the funds carried over. When amounts are not expended or carried over for the community to which they are initially allocated they shall be assigned when additional participation on a project is warranted or be reallocated to communities with active undergrounding programs.

3. The undergrounding extends for a minimum, distance of one block or 600feet, whichever is the lesser.

Upon request of the governing body, PG&E will pay for the installation of no more than 100 feet of each customer's underground electric service lateral occasioned by the undergrounding. The governing body may establish a smaller footage allowance, or may limit the amount of money to be expended on a single customer's electric service, or the total amount to be expended on all electric service installations in a particular project.

(Continued)

RULE 20-REPLACEMENT OF OVERHEAD WITH UNDERGROUND ELECTRIC FACILITIES
(Continued)

B. In circumstances other than those covered by A above, PG&E will replace its existing overhead electric facilities with underground electric facilities along public streets and roads or other locations mutually agreed upon when requested by an applicant or applicants when all of the following conditions are met:

1. a. All property owners served from the overhead facilities to be removed first agree in writing to have the wiring changes made on their premises so that service may be furnished from the underground distribution system in accordance with PG&E's rules and that PG&E may discontinue its overhead service upon completion of the underground facilities; or

   b. Suitable legislation is in effect requiring such necessary wiring changes to be made and authorizing PG&E to discontinue its overhead service.

2. The applicant has:

   a. Furnished and installed the pads and vaults for transformers and associated equipment, conduits, ducts, boxes, pole bases and performed other work related to structures and substructures including breaking of pavement, trenching, backfilling, and repaving required in connection with the installation of the underground system, all in accordance with PG&E's specifications, or, in lieu thereof, paid PG&E to do so;

   b. Transferred ownership of such facilities, in good condition, to PG&E; and

   c. Paid a nonrefundable sum equal to the excess, if any, of the estimated costs, of completing the underground system and building a new equivalent overhead system. (T)

3. The area to be undergrounded includes both sides of a street for at least one block or 600 feet, whichever is the lesser, and all existing overhead communication and electric distribution facilities within the area will be removed.

(Continued)

RULE 20-REPLACEMENT OF OVERHEAD WITH UNDERGROUND ELECTRIC FACILITIES
(Continued)

C. in circumstances other than those covered by A or B above, when mutually agreed upon by PG&E and an applicant, overhead electric facilities may be replaced with underground electric facilities, provided the applicant requestingthe change pays, in advance, a nonrefundable sum equal to the estimated cost of the underground facilities less the estimated net salvage value and depreciation of the replaced overhead facilities. Underground services will be installed and maintained as provided in PG&E's rules applicable thereto.

D. The term "underground electric system" means an electric system with all wires installed underground, except those wires in surface mounted equipment enclosures

THE SENATE
TWENTIETH LEGISLATURE, 2000
STATE OF HAWAII

S.B. NO.

A BILL FOR AN ACT

RELATING TO UTILITY LINES.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. Chapter 269, Hawaii Revised Statutes, is amended by adding a new section to be appropriately designated and to read as follows:

"§269- Value of benefits. It is the policy of the State with regard to the placement of utility lines to value the aesthetic benefit of the natural landscape in residential and conservation zoned districts above all else."

SECTION 2. New statutory material is underscored.

SECTION 3. This Act shall take effect upon its approval.

INTRODUCED BY: _____

[This alternative should be enacted if the Legislature intends to automatically value aesthetic benefits over cost or any other considerations.]

THE SENATE
TWENTIETH LEGISLATURE, 2000
STATE OF HAWAII

S.B. NO.

A BILL FOR AN ACT

MAKING AN APPROPRIATION TO QUANTIFY BENEFITS OF UNDERGROUNDING UTILITY LINES.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. Section 269-27.6, Hawaii Revised Statutes, requires the evaluation of whether a benefit of underground high-voltage utility lines exists that outweighs the costs of placing the system underground_ This Act appropriates funds to enable the consumer advocate to quantify the benefits accurately and include the measurement of externalities.

SECTION 2. There is appropriated out of the general revenues of the State of Hawaii the sum of $500,000, or so much thereof as may be necessary for fiscal year 2000-2001, to develop measures **to quantify the benefits of underground high-voltage utility lines including the measurement of externalities associated with underground lines. The sum appropriated shall be expended by the division of consumer advocacy of the department of commerce and consumer affairs for the purposes of this** Act.

SECTION 3. This Act shall take effect on July 1, 2000.

INTRODUCED BY: _____

[This alternative should be enacted if the Legislature wants to require the development of means to quantify the benefits of undergrounding high-voltage utility lines for use in PUC proceedings_]

THE SENATE
TWENTIETH LEGISLATURE, 2000
STATE OF HAWAII

S.B. NO.

A BILL FOR AN ACT

RELATING TO ENVIRONMENTAL IMPACT STATEMENTS.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. Section 343-5, Hawaii Revised Statutes, is amended by amending subsection (c) to read as follows:

"(c) Whenever an applicant proposes an action specified by subsection (a) which requires approval of an agency, and which is not a specific type of action declared exempt under section 343-6, the agency receiving the request for approval shall prepare an environmental assessment of such proposed action at the earliest practicable time to determine whether an environmental impact statement shall be required. For environmental assessments for which a finding of no significant impact is anticipated, a draft environmental assessment shall be made available for public review and comment for a period of thirty days. The office shall inform the public of the availability of the draft environmental assessment for public review and comments pursuant to section 343-3. The applicant shall respond in writing to comments received during the review and the agency shall prepare a final environmental assessment to determine whether an environmental impact statement shall be required. A statement shall be required if the agency finds that

the proposed action may have a significant effect on the environment. The agency shall file notice of such determination with the office which, in turn, shall publish the agency's determination for the public's information pursuant to section 343-3. The draft and final statements, if required, shall be prepared by [the applicant,] either:

(1) The applicant, who shall file these statements with the office[.]; or

(2) If the applicant is a regulated utility under chapter 269, by a qualified environmental consultant retained under contract by the office in accordance with the competitive sealed bidding or the competitive sealed proposals source selection methods established under sections 103D-302 and 103D-303, respectively. No prospective consultant who is in any way affiliated with the applicant, or who has ever received remuneration in the past from the applicant for services rendered, shall be allowed to submit bids for the preparation of a statement under this subsection. The applicant shall reimburse the office for all contractual as well as reasonable administrative costs incurred by the office as a result of negotiating the contract immediately upon the ascertainment of the

contract amount by the office.

The draft statement shall be made available for public review and comments through the office for a period of forty-five days. The office shall inform the public of the availability of the draft statement for public review and comments pursuant to section 343-3. The applicant shall respond in writing to comments received during the review and shall submit a request to the office to begin the competitive process of selecting a consultant, as required under this subsection, to prepare a final statement. The office, when requested by the applicant or agency, may make a recommendation as to the acceptability of the final statement. The authority to accept a final statement shall rest with the agency receiving the request for approval. Acceptance of a required final statement shall be a condition precedent to approval of the request and commencement of proposed action. Upon acceptance or nonacceptance of the final statement, the agency shall file notice of such determination with the office. The office, in turn, shall publish the determination of acceptance or nonacceptance of the final statement pursuant to section 343-3. The agency receiving the request, within thirty days of receipt of the final statement, shall notify the applicant and the office of the acceptance or nonacceptance of the final statement. The final statement shall be deemed to be

accepted if the agency fails to accept or not accept the final statement within thirty days after receipt of the final statement; provided that the thirty-day period may be extended at the request of the applicant for a period not to exceed fifteen days.

In any acceptance or nonacceptance, the agency shall provide the applicant with the specific findings and reasons for its determination. An applicant, within sixty days after nonacceptance of a final statement by an agency, may appeal the nonacceptance to the environmental council, which, within thirty days of receipt of the appeal, shall notify the applicant of the council's determination. In any affirmation or reversal of an appealed nonacceptance, the council shall provide the applicant and agency with specific findings and reasons for its determination. The agency shall abide by the council's decision."

SECTION 2. Statutory material to be repealed is bracketed. New statutory material is underscored.

SECTION 3. This Act shall take effect upon its approval.

INTRODUCED BY: _____

THE SENATE
TWENTIETH LEGISLATURE, 2000
STATE OF HAWAII

S.B. NO.

A BILL FOR AN ACT

RELATING TO THE PUBLIC UTILITIES COMMISSION.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. Chapter 269, Hawaii Revised Statutes, is amended by adding a new section to be appropriately designated and to read as follows:

"§269- Authorization of need; conservation district use permits. Whenever a regulated utility proposes a capital project within the boundaries of the conservation district for which an environmental impact statement is required under chapter 343, the commission shall issue an order authorizing or denying the need and scope of the project prior to the acceptance of a completed application for a conservation district use permit by the department of land and natural resources under section 183C-6."

SECTION 2. Section 183C-6, Hawaii Revised Statutes, is amended by amending subsection (b) to read as follows:

"(b) The department shall render a decision on a completed application for a permit within one-hundred-eighty days of its acceptance by the department. In the case of a public utility proposing a capital project within the boundaries of the conservation district for which an environmental impact statement required pursuant to chapter 343, no application shall be

. ldeemed to be complete until the department has received an order 2from the public utilities commissionauthorizing the need and 3scope of the proposed action pursuant to section 269- . If 4within one-hundred-eighty days after acceptance of a completed 5application for a permit, the department shall fail to give 6notice, hold a hearing, and render a decision, the owner may 7automatically put the owner's land to the use or uses requested 8in the owner's application. When an environmental impact 9statement is required pursuant to chapter 343, or when a 10contested case hearing is requested pursuant to chapter 91, the llone-hundred-eighty days may be extended an additional ninety days 12at the request of the applicant. Any request for additional 13extensions shall be subject to the approval of the board."

14 SECTION 3. New statutory material is underscored.

15 SECTION 4. This Act shall take effect upon its approval.

16

17 INTRODUCED BY: _____

THE SENATE
TWENTIETH LEGISLATURE, 2000
STATE OF HAWAII

S.B. NO.

A BILL FOR AN ACT

RELATING TO THE PUBLIC UTILITIES COMMISSION.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. Chapter 269, Hawaii Revised Statutes, is amended by adding a new section to be appropriately designated and to read as follows:

"§269- Alternative dispute resolution. The commission may require the parties in any matter before the commission to participate in arbitration, mediation, or other alternative dispute resolution process prior to the hearing."

SECTION 2. New statutory material is underscored.

SECTION 3. This Act shall take effect upon its approval.

INTRODUCED BY: _____

THE SENATE
TWENTIETH LEGISLATURE, 2000
STATE OF HAWAII

S.B. NO.

A BILL FOR AN ACT

RELATING TO PUBLIC UTILITIES COMMISSION.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. Chapter 269, Hawaii Revised Statutes, is amended by adding a new section to be appropriately designated and to read as follows:

"§269- Intervenor program. The commission shall establish an intervenor program that assists consumers who have significant information to contribute to hearings and other proceedings before the commission that is outside the scope of the functions of the consumer advocate. The intervenor program shall include procedural assistance and financial compensation for consumer costs including reasonable consultant and attorney's fees. The commission shall adopt rules under chapter 91 for the implementation of and to establish standards for the intervenor program."

SECTION 2. There is appropriated out of the general revenues of the State of Hawaii the sum of$, or so much thereof as may be necessary for fiscal year 2000-2001, to the public utilities commission to create and maintain an information and communication resource accessible through the world wide web.

SECTION 3. The sums appropriated shall be expended by the

lpublic utilities commission for the purposes of this Act.

SECTION 4. New statutory material is underscored.

SECTION 5. This Act shall take effect on July 1, 2000.

INTRODUCED BY: _____

THE SENATE
TWENTIETH LEGISLATURE, 2000
STATE OF HAWAII

S.B. NO.

A BILL FOR AN ACT

RELATING TO PUBLIC UTILITIES.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. Chapter 269, Hawaii Revised Statutes, is amended by adding a new section to be appropriately designated and to read as follows:

"§269- One-call system. (a)' The commission shall establish or authorize an independent entity to establish and maintain a one-call system to identify the location of underground facilities before January 1, 2001. All owners of underground facilities shall subscribe to the service.

(b) Before commencing any excavation, an excavator shall provide notice of the scheduled commencement of excavation to the one-call system. All underground facilities shall be identified through the one-number locator service_ The notice shall be communicated to the one-call system not less than two business days or more than ten business days before the scheduled date for commencement of excavation, unless otherwise agreed by the parties.

Upon receipt of the notice provided for in this section, the excavator shall obtain reasonably accurate information as to locatable underground facilities by surface-marking the location

of the facilities. Excavators shall have the right to receive compensation from the owner of the underground facility for costs incurred if the owner of the underground facility does not locate its facilities in accordance with this section. The owner of the underground facility shall have the right to receive compensation for costs incurred in responding to excavation notices given less than two business days prior to the excavation from the excavator.

Emergency excavations shall be exempt from the time requirements for notification provided in this section.

If the excavator, while performing the contract, discovers underground facilities that are not identified, the excavator shall cease excavating in the vicinity of the facility and immediately notify the one-number locator service

(c) Unless the context clearly requires otherwise, as used in this section:

"Business day" means any day other than Saturday, Sunday, or a legal state or federal holiday.

"Emergency" means any condition constituting a clear and present danger to life or property, or a customer service outage.

"Excavation" means any operation in which earth, rock, or other material on or below the ground is moved or otherwise displaced by any means, except the tilling of soil less than

twelve inches in depth for agricultural purposes, or road and ditch maintenance that does not change the oriqinal road grade or ditch flowline.

"Excavator" means any person who enqaqes directly in excavation.

"Markinq" means the use of stakes, paint, or other clearly identifiable materials to show the field location of underqround facilities, in accordance with the current color code standard of the American public works association. Markings shall include identification letters indicatinq the specific type of the underqround facility.

"Reasonably accurate" means location within twenty-four inches of the outside dimensions of both sides of an underqround facility.

"Underqround facility" means any item buried or placed below qround for use in connection with the storaqe or conveyance of water, sewaqe, electronic, telephonic or teleqraphic communications, cablevision, electric enerqy, petroleum products, gas, qaseous vapors, hazardous liquids, or other substances and including but not limited to pipes, sewers, conduits, cables, valves, lines, wires, manholes, attachments, and those parts of poles or anchors below ground.

"One-number locator service" means a service throuqh which a

lperson can notify utilities and request field-marking of 2underground facilities.

3 (d) The commission may adopt rules pursuant to chapter 91 4to implement this section."

5 SECTION 2. New statutory material is underscored.

6 SECTION 3. This Act shall take effect upon its approval.

7

8 INTRODUCED BY: _____

CONVERSION A

THE SENATE
TWENTIETH LEGISLATURE, 2000
STATE OF HAWAII

S.B. NO.

A BILL FOR AN ACT

RELATING TO PUBLIC UTILITIES COMMISSION.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. Chapter 269, Hawaii Revised Statutes, is amended by adding two new sections to be appropriately designated and to read as follows:

"§269- Conversion program. The commission shall establish a conversion program that allows for the systematic conversion of overhead utility lines to underground lines. The conversion program shall:

(1) Authorize each county to determine underground zones by ordinance;

(2) Require any utility that transports or distributes services across utility lines and cables to contribute to the funding of the program provided that annual contributions from the utilities shall not exceed two per cent of annual gross revenues; and

(3) Establish criteria that allocates funding to each county for its underground conversion zones.

The commission shall adopt rules according to chapter 91 for the implementation of and to establish standards for the conversion program."

SECTION 2. New statutory material is underscored.

SECTION 3. This Act shall take effect upon its approval.

INTRODUCED BY: _____

CONVERSION B

THE SENATE
TWENTIETH LEGISLATURE, 2000
STATE OF HAWAII

S.B. NO.

A BILL FOR AN ACT

RELATING TO PUBLIC UTILITIES COMMISSION.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. Chapter 269, Hawaii Revised Statutes, is amended by adding two new sections to be appropriately designated and to read as follows:

"§269-A Underground conversion fund. (a) There is established in the state treasury the underground conversion fund, which shall be administered by the commission. The following revenues shall be deposited into the fund:

(1) Legislative appropriations;

(2) Voluntary contributions including any contributions paid along with state income tax due or amounts paid in excess of a utility bill that is part of a "round-up" program; and

(3) Contributions by a utility by order of the commission.

(b) All moneys from the fund shall be used for the conversion of overhead utility lines to underground facilities. The conversion of overhead utility lines includes the planning, design, and construction of the new facilities and the removal of the old overhead facilities.

(c) The commission shall establish criteria allocating funds to counties that determine undergrounding zones through

special improvement districts by ordinance.

(d) The commission shall adopt rules according to chapter 91 to carry out the administration of the fund.

§269-B Allocation of revenues to underground conversion fund. (a) The commission shall establish an annual allocation of revenues from each utility company having above ground facilities. The allocation shall be deposited into the underground conversion fund established in section 269-A. Revenues allocated annually to the fund by each utility shall not exceed two per cent of the annual gross revenues of the utility.

(b) The commission shall allow the utilities to collect voluntary contributions by consumers for deposit into the fund through a "round-up" program. A round-up program is a program in which consumers may choose to round their utility bill up to the nearest dollar. The difference between the actual bill and the rounded amount is deposited into the underground conversion fund. The round-up program shall be administered by the utility. All funds collected by a utility in a round-up program shall be deposited monthly into the underground conversion fund. Any funds collected by a utility through a round-up program shall be excluded in determining the annual gross revenue of the utility."

SECTION 3. Chapter 235, Hawaii Revised Statutes, is amended by adding a new section to be appropriately designated and to

lread as follows:

"§235- Voluntary contributions to the underground conversion fund. The director shall allow for taxpayers to designate and pay a voluntary contribution to the underground conversion fund on their annual income tax return. The voluntary contribution shall be added to the final income tax due or subtracted from any refund due and may be allocated to the underground conversion fund, if applicable."

SECTION 4. In codifying the new sections added by section of this Act, the revisor of statutes shall substitute appropriate section numbers for the letters used in the new sections designated in this Act.

SECTION 5. New statutory material is underscored.

SECTION 6. This Act shall take effect upon its approval.

INTRODUCED BY: _____