

TESTIMONY OF
THOMAS L. HARRINGTON

PRESIDENT
TLH MANAGEMENT SERVICES, INC.

Subject: Construction Schedule

INTRODUCTION

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- Q. Please state your name and business address.
- A. My name is Thomas L. Harrington. I am the President of TLH Management Services, Inc. My business address is 770 Kapiolani Boulevard, Suite 501, Honolulu, Hawaii.
- Q. What is your profession?
- A. I am a construction manager who specializes in electrical utility construction management.
- Q. How long have you been a construction manager?
- A. I have been a construction manager for approximately 16 years.
- Q. Please describe your duties and responsibilities at TLH Management Services, Inc.
- A. I provide comprehensive construction management services to electric utilities such as Hawaiian Electric Company, Inc. Typically, I will take the project through the entire construction process, which includes issuing a bid package, soliciting the bid response, reviewing and recommending bids, managing the contract, and finally, facilitating the cutover (commissioning) and project closeout activities. In addition to the construction management, I provide technical guidance to the contractor, technical support to the engineer, and supervise the inspection and acceptance process.
- Q. Could you briefly describe your work experience in the field of electrical utility construction?
- A. I have been a construction manager for numerous electrical utility projects in Hawaii and on the mainland, including the Kewalo to Kamoku 138 kV Ductline and the Waiiau-CIP 138 kV Transmission Lines projects. My work experience as

1 a construction manager on electrical utility projects is listed in HECO-800.

2 Q. What is the scope of your testimony?

3 A. My testimony will address the schedule and sequence for the construction of the
4 East Oahu Transmission Project (“EOTP”) alternatives (i.e., Kamoku-Pukele 138
5 kV Underground Option, Kamoku 46 kV Underground Alternative, Kamoku 46
6 kV Underground Expanded Alternative), and the phased construction of the
7 Kamoku 46kV Underground Expanded Alternative.

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9 DEVELOPMENT OF CONSTRUCTION SCHEDULES

10 Q. How were the construction schedule estimates developed for the alternatives that
11 were considered?

12 A. In general, the construction schedule estimates take into consideration the crew
13 structures for the trenching, ductline and cable installation work, and the planned
14 work hours and shifts. We start by looking at the project requirements and scope
15 of work - - most notable, the size, and technical requirements. From this, a crew
16 structure is loaded in the baseline assumptions. The basis for the crew structure
17 rests on two key considerations: first, the productivity of each crew, and second,
18 the number of crews that can work simultaneously with the least impact to the
19 neighborhood and the driving public.

20 Q. How was the impact to the neighborhood and driving public taken into
21 consideration in developing the construction schedule estimates?

22 A. It was recognized that, in most instances, the work will take place in a congested
23 urban environment. Accordingly, a number of critical planning elements were
24 considered in developing the construction schedules, including: traffic control,
25 noise mitigation, dust control, access to businesses and homes, and community

1 relations.

2 Q. Please describe how the construction schedule estimates take into consideration
3 unusual or unanticipated events?

4 A. No unusual obstacles would be expected. The entire route for each alternative
5 will be limited to the boundaries of existing city streets, which reduces the
6 likelihood that unusual or unanticipated events will occur. The planning model
7 assumes that no unusual obstacles will emerge during construction (e.g., unknown
8 utilities, burial sites, additional permit restrictions). The planning model assumes
9 that trenching/ductline installation will achieve 40 feet to 50 feet per day
10 productivity. (It varies for the alternatives.) The estimated productivity rates
11 were based on historical data from HECO projects and adjusted downward to take
12 into account the work environment for the alternatives. These productivity
13 estimates establish the early/optimistic date. None of the schedule estimates rely
14 on the early/optimistic dates. Should obstacles occur, flexibility (for
15 contingencies) is included in the estimated construction schedules. All of the
16 schedule estimates are bracketed with approximate ranges, e.g., 12 – 18 months,
17 where first figure reflects the early date, and the latter figure provides a
18 contingency allowance for obstacles or unknown items.

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20 CONSTRUCTION SCHEDULE ESTIMATES
21 OF THE ALTERNATIVES NOT BEING PURSUED

22 Q. Please briefly summarize the construction schedule estimates for the (1) Kamoku-
23 Pukele 138 kV Underground Option, (2) Kamoku 46 kV Underground
24 Alternative, and (3) Kamoku 46 kV Underground Expanded Alternative.

25 A. Each schedule is described in detail in HECO-801, HECO-802, HECO-803, and

1 HECO-804, which are HECO's technical memoranda that discuss the estimated
2 construction schedules for these alternatives. The significant points and critical
3 elements of each alternative are as follows:

4 I. 138kV Kamoku-Pukele 138 kV Underground Option (HECO-801).

- 5 ■ Schedule: 18 – 24 months.
- 6 ■ Crew Structure:
 - 7 • Trenching/Ductline Construction, 3 crews.

8 The three crews will work during the day. One crew will
9 work at night on a portion of the project.

- 10 • Pump House (1) crew.
- 11 • Cable Installation, (1) crew.

12 This work can begin approximately 6 – 9 months after the
13 start of trenching activities. This crew will work both day
14 and nights as required.

15 II. Kamoku 46kV Underground Alternative (HECO-802).

- 16 ■ Schedule: 12 – 18 months.
- 17 ■ Crew Structure:
 - 18 • Trenching/Ductline Construction, 2 crews.

19 One crew will work only during the day. The other crew
20 will work during the day and at night on a portion of the
21 project.

- 22 • Cable Installation, 1 crew.

23 This work will begin as soon as the ductline is complete.

24 This crew will work both day and nights as required.

1 III. Kamoku 46kV– Expanded Alternative (HECO-803).

2 ■ Schedule: 12 – 18 months.

3 ■ Crew Structure:

- 4 • Trenching/Ductline Construction, 3 crews.

5 One crew will work during the day and the other two crews
6 will work during the day and at night on some portions of the
7 project.

- 8 • Cable Installation, 1 crew.

9 This work will begin approximately after the start of ductline
10 construction. This crew will work both day and nights as
11 required.

12 Q. Did the scope of work present any difficulties in developing the estimated
13 construction schedule for the three alternatives?

14 A. No. There is nothing unusual about the scope of work or schedules in the three
15 alternatives. For each alternative, we were able to review past projects with
16 similar work packages and environments to determine projected work rates for the
17 alternatives.

18
19 KAMOKU 46 kV UNDERGROUND
20 EXPANDED ALTERNATIVE, PHASES 1 AND 2

21 Q. What is the estimated construction schedule for the Kamoku 46 kV Underground
22 Expanded Alternative, Phase 1?

23 A. As discussed in HECO’s technical memorandum for the expanded alternative
24 (HECO-804), for Phase 1, a ductline will interconnect HECO’s Makaloa
25 Substation to McCully Substation. This duct alignment will follow Makaloa

1 Street to Kalakaua Avenue, to Fern, Hauoli, and Lime Streets, into McCully
2 Substation. Additionally, there will be four other duct lines installed to
3 interconnect various circuits. The first duct line would be installed at the
4 intersection of Date and Pumehana Street. This duct line would allow
5 interconnection of an existing 46kV circuit that terminates on Date Street with an
6 existing circuit that runs along Pumehana Street. The second and third duct lines
7 would be installed on Date Street in front of HECO's Kamoku Substation. These
8 duct lines would allow interconnection of the new transformer at Kamoku
9 Substation (part of this alternative) with an existing 46kV circuit that runs along
10 Date Street. The fourth duct line would be installed on Winam Avenue. This duct
11 line would allow interconnection of an existing 46kV circuit that terminates on
12 Winam Avenue with an existing circuit that runs along Mooheau Avenue. It is
13 estimated that ductline construction and cable installation for Phase 1 will take
14 approximately 10-12 months to complete.

15 Q. What is the estimated construction schedule for Phase 2?

16 A. In general, for Phase 2, the interconnection will be accomplished with the
17 installation of a 3-circuit ductline from HECO's Archer Substation to Cooke
18 Street, along King Street to the 1st and 2nd circuit termination points at Times
19 Supermarket at 1772 S. King, with the ductline continuing diamond head on King
20 Street to McCully Street, up (mauka) McCully to Young Street for the 3rd circuit
21 termination. It is estimated that ductline construction and cable installation for
22 Phase 2 will take approximately 13-15 months to complete.

23 Q. Please discuss the number of crews that will be used for both phases for the
24 trenching and ductline work, and the cable installation work.

25 A. Each phase will utilize a two-crew structure for the trenching and ductline work.

1 For both phases, the trenching crews will proceed concurrently. For Phase 1, one
2 trenching crew will work during the day and the second crew will work during the
3 day and at night on one portion of the project (if approval is received). For Phase
4 2, both crews will work during the night (if approval is received) and one crew
5 will work during the day on some portions of the project. The cable installation
6 work will involve one crew and will be performed, for the most part, after the
7 trenching has been completed.

8 As with the estimated construction schedules for the other alternatives,
9 estimated productivity rates were based on historical data from HECO projects
10 and adjusted downward to take into account the work environment.

11 Q. Has HECO considered the impacts created by construction activities?

12 A. Yes. HECO has developed plans to address impacts of the construction activities
13 on traffic, noise, dust, and access to businesses and homes. In addition, HECO
14 has developed a plan for HECO to respond to concerns raised by the community
15 regarding the impacts of the construction activities.

16 Q. How will HECO address traffic impacts created by construction activities?

17 A. The staging of all work will be in accordance with the traffic control plans that are
18 approved by C&C Honolulu, Department of Planning & Permitting. HECO
19 proposes to implement a number of measures to address the traffic impacts. For
20 example, where construction work during the day will significantly impact traffic
21 (e.g., work along Makaloa Street, Kalakaua Avenue, King Street), HECO will
22 attempt to have the work done at night to eliminate day time traffic impacts and
23 provide longer shift hours. In addition, when appropriate, the construction work
24 will provide contra flow lanes when there are lane closures. When detours are
25 utilized, local access will be maintained for residents directly adjoining the work

1 zone. Further, all work sections will have at least one Special Duty Police officer
2 assigned to monitor activities.

3 Q. How will HECO address the noise created by construction activities?

4 A. For day work, the contractor will secure a noise permit from the Department of
5 Health prior to commencement of construction. (Areas identified for day-work
6 include Date Street, Fern Street, Hauoli Street, Lime Street and Winam Avenue.)
7 For work sections that are in close proximity to residences (e.g., Fern Street,
8 Hauoli Street, Lime Street, and Winam Avenue), the contractor will be required to
9 take steps to mitigate the noise generating sources wherever possible. For
10 example, back up alarms on the construction vehicles can be disconnected,
11 construction speed limits for the construction vehicles can be strictly enforced,
12 and attenuating mufflers on all digging machinery can be required. The
13 construction contracts will require that contractors provide for such noise
14 mitigation means and methods.

15 For night work, HECO will apply for a noise variance permit from the
16 Department of Health. The permit sets acceptable noise levels, work hours, and
17 performance requirements such as limiting the “noisier work” to the early evening
18 hours, disconnecting backup alarms, and monitoring the work area with noise
19 meters and/or recorders.

20 Q. Does HECO expect the dust created by construction activities to be a significant
21 issue?

22 A. HECO does not expect dust to be an issue. This construction activity will be
23 staged and performed from paved surfaces. In addition, soil will not remain on
24 site after excavation and/or prior to backfill. Further, all excavated material will
25 be removed from the site immediately, and a cemented flowable material will be

1 used for backfill. Moreover, the contractor will be required to wash down the
2 work area at the end of each shift.

3 Q. How will HECO address the impacts regarding access to businesses and
4 residential properties during construction?

5 A. Most of the work on areas fronting businesses is designated for night work and
6 should not affect business traffic. For the limited work that is scheduled during
7 the day, access to businesses directly fronting the work zones will be maintained
8 throughout the entire construction process. This will be accomplished with
9 additional traffic control devices and procedures specifically implemented to
10 ensure “customer-friendly” access (e.g., special signs directing motorists to the
11 business, use of traffic cones to direct motorists to the entrance). Residential
12 properties will experience some driveway and sidewalk closures. All such
13 closures will be carefully coordinated with the resident (e.g., driveway blocked
14 while the affected person is at work). All residential driveway access will be
15 returned at the end of each shift when the work extends over several days.

16 Q. How does HECO plan to handle community relations, specifically compliant
17 response, while the construction activities are underway?

18 A. A “24/7” project “hot line”, with a dedicated telephone number (not the HECO
19 Trouble Line) will be in place for the duration of the project. Publication of this
20 number will be communicated widely and frequently. The primary purpose of
21 this hot line is to immediately handle and respond to all complaints, questions, and
22 concerns. It will ring through directly to the construction manager and/or on-site
23 supervisory personnel – 24 hours a day.

24 Q. How will HECO communicate project information to the community impacted by
25 the construction activities?

1 A. As with past HECO projects, information will be communicated to the
2 neighborhoods impacted by the construction activities in the following manner.
3 First, prior to commencement of construction, informational flyers will be
4 distributed throughout the affected neighborhoods. Immediately prior to start of
5 construction activities, HECO's construction manager will meet with each
6 business owner to discuss the project and schedule in detail. Second, while the
7 project is underway, the construction manager will attend all monthly
8 Neighborhood Board meetings. He will update the activities and submit a written
9 progress report. The construction manager will attend the entire meeting and
10 make himself available for additional questions and comments from the
11 community. Third, the construction manager will also initiate and maintain an
12 ongoing dialogue with one or several of the Board Members. This dialogue will
13 be in addition to the briefings at the meetings.

14 Q. Do you have concluding statements regarding the schedule estimates, especially
15 as they relate to any construction impacts?

16 A. Yes. The baseline estimates of 10 -12 months for Phase 1, and 13 - 15 months for
17 Phase 2 provide a realistic planning tool. The early/optimistic time frame(s), that
18 is the schedule estimate without any contingency allowance, are reflective of
19 experiences on past projects and/or relies on professional estimates by planners
20 familiar with the work and work environment.

21 In addition, it should be pointed out that the estimated construction schedule
22 is not a static document and the conclusions and assumptions set forth in the
23 scheduling estimate may not remain constant during construction. To the
24 contrary, it is assumed that the project manager, construction manager, and
25 contractor(s) will continually seek any and all economies that will improve on the

1 estimated schedule. Likewise, should it become apparent in the early stages of the
2 construction project that schedule estimates are not being met, project
3 management and the contractor will seek and initiate remedies, which will at the
4 very least protect the out-date estimates.

5 Further, regarding construction impacts, if the experiences from past
6 projects, notably the Archer-Kewalo, Kona Street Phases I & II, and Kapiolani
7 Ductline Projects hold for this project, it is not likely the construction impacts will
8 become an issue. HECO will utilize construction management processes, along
9 with the community relation procedures, which have been project-tested and
10 shown to be effective.

11 Q. Does this conclude your testimony?

12 A. Yes, it does.

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