

Evaluation of Bids for 36 Megawatts of Firm Power Generating Capacity for Grand Cayman

# **FINAL REPORT**

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Submitted to: Electricity Regulatory Authority of the Cayman Islands

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#### **IMPORTANT NOTICE:**

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# **1** Executive Summary

This report provides the Board of the Electricity Regulatory Authority (the ERA) with ICF International's (ICF's) assessment of four of the six bids received and fully evaluated for 36 MW of incremental generating capacity required on Grand Cayman in 2016.

Overall, ICF recommends that the Board accept the bid from Caribbean Utilities Company (CUC) as best for customers. While all four bids met the threshold requirements, CUC's bid scored markedly better than the bids from the Louis Berger Group (LBG) and Dart Enterprises Contracting Company (DECCO) as agent for Dart Enterprises Real Estate on both the price and non-price factors, as follows:

	CUC	LBG	DECCO #1	DECCO #2
Price Factor (80 Possible)	80	54	62	63
Non-Price Factors (20 Possible)	17.86	15.42	11.52	9.99
TOTAL	97.86	69.42	73.52	72.99

Exhibit ES1 - Overall Scoring of Proposals for Generation on Grand Cayman

In particular, CUC's price bid, when combining both fixed and variable costs, was approximately 22 percent better than DECCO #2, 22 percent better than DECCO #1 and 33 percent better than LBG. As detailed in the report, the biggest percentage difference between the bids was on the fixed costs of their proposals. However, CUC also provided the proposal with the highest efficiency (lowest heat rate) by a significant margin. Under the terms of the RFP, the lowest-priced bidder received all of the 80 points available in that category, and the points for others were scaled to that bid.

For a 25-year term, ICF projects that CUC's bid represents a levelized amount of 22.26 CI cents per kWh, while the levelized costs for DECCO #2, DECCO #1 and LBG would be 27.10, 27.24, and 29.61 cents per kWh, respectively.

On the non-price factors, for which 20 points were available, CUC's proposal was as good or better than the other bidders in all categories except air emissions, since diesel fuel produces more pollutants when burned than propane.

# 2 Background

On April 3, 2008, the Cayman Islands Government signed a transmission and distribution (T&D) License with Caribbean Utilities Company (CUC). Among other provisions, that License requires the ERA to

conduct a competitive bidding process for every new increment of firm capacity (megawatts) required on Grand Cayman, taking load growth, plant retirements and required reserve margins/reliability into account. Prior to such a solicitation, the T&D License requires CUC to assess these factors and if warranted, to apply to the ERA for approval to add capacity through a Certificate of Need (CON). The CON also must include the required performance features for the new capacity.

Once the CON is approved, the T&D License gives the ERA the responsibility to solicit for and evaluate the capacity bids, as it was understood that CUC could not objectively evaluate its own submission. The License limited CUC's role in the evaluation process to providing estimates of the cost to interconnect the new capacity at various substations, and to negotiating a power purchase agreement (PPA) with the winning bidder, if not CUC. The License also specified that CUC was required to bid to ensure that adequate capacity would always be available to customers on Grand Cayman.

CUC applied for, and the ERA approved, a CON to add 36 MW of firm capacity (in two increments of 18 MW, plus or minus 10 percent) in May 2016 and June 2016.

Once the ERA approved the CON, the next step was to identify qualified bidders who could potentially bid to supply the needed capacity. Recognizing that the relatively small size of the need and few fuel options would limit the number of potential bidders, ICF undertook a worldwide information and promotion campaign on the ERA's behalf for qualified bidders, including tailored advertisements in a number of print and on-line publications, and the ERA designed an enhanced web site for this solicitation. As a result of this outreach, nine firms submitted Statements of Qualifications (SOQs), not including CUC, which is automatically deemed qualified as per the terms of the Licence. ICF carefully reviewed the SOQ submissions, and those bidders determined by the ERA to have sufficient experience with developing, constructing and operating projects, and with sufficient financial wherewithal were also qualified to participate in the solicitation. Five of those firms were deemed qualified –and the ERA provided them with the RFP and informed them that they would be welcome to submit a proposal. Four firm's SOQs were rejected based on ICF's recommendations and the ERA's view that they did not demonstrate either adequate experience in developing projects or sufficient financial capabilities.

Working closely with the ERA, ICF helped develop a competitive solicitation document, including:

- Project requirements (e.g., necessary size, performance, timeline, etc.)
- Threshold factors (minimal required features);
- Bid evaluation criteria (both price and non-price);
- Interconnection costs; and
- A number of other items.

The RFP for firm electricity generation capacity to replace capacity retirements and serve the expected load growth on Grand Cayman resulted in the submission of multiple bids, and ICF was engaged by the ERA to conduct an independent review of these proposals. ICF performed a similar screening analysis for proposals submitted in response to the ERA's RFPs in 2009 and 2012. ICF's evaluation is based on the specifications in the RFP and builds on our familiarity with the processes gained during the prior assessment work for the ERA.

The ERA solicitation requires the development, construction and operation of 18 megawatts (MW) (+/-10%) of nominal firm generating capacity for Grand Cayman to be online no later than May 1, 2016, and another 18 MW (+/-10%) of nominal generating capacity to be online no later than June 1, 2016.<sup>1</sup>

One of the priorities in this solicitation was to make the evaluation of bids even more transparent than in the past, so that both the process and the reasons for the award or deduction of points would be quite clear. To do so, we modified some criteria and took a number of the sub-criteria and matrices that we used in prior solicitations for internal analysis, and put them explicitly into the RFP. This structure is consistent with international best practices for competitive solicitations.

ICF also worked with the ERA and CUC on a draft power purchase agreement (PPA), modified from prior solicitations to improve several provisions that bidders considered unfinanceable. The ERA provided the RFP and draft PPA to all qualified bidders, and conducted a pre-bid meeting in February 2014. At this meeting, ICF presented how the process and scoring would progress, and answered numerous questions from the qualified bidders, both at the meeting and in the weeks before bids were due.

In the end, the ERA received bids from three firms, CUC, LBG and DECCO, with CUC submitting three bids and DECCO submitting two bids, for a total of six proposals. By taking the many steps described in this report, the ERA conducted a robust competitive solicitation process designed to ensure continued reliability of service and identify the best possible source – from both an economic and a technical perspective - of new generation capacity for Grand Cayman.

# 3 Bid Evaluation Methodology

ICF's approach to the review of the six proposals for the ERA's consideration followed the process laid out in the RFP and specified in the T&D Licence. First, we checked to ensure that the bids satisfied the threshold requirements for detailed consideration. While all the bidders ended up with at least one qualifying proposal, this screening process raised a number of questions for the bidders and required careful review to ensure that they could all deliver fuel to the site; that the fuel proposed (e.g., heavy fuel oil) was acceptable, and that their zoning would allow them to develop the required generation. Section 3.1 describes the results of this review.

Next, for the bids that met the threshold criteria, ICF opened the price bids, which the RFP had instructed the bidders to package separately, and began to evaluate both the price and non-price factors in more detail in order to develop a score (on a 100-point scale) for each of the proposed projects.

- **Price factors** are all those that relate to the price borne by customers for that increment of capacity, and
- **Non-price factors** are all those that relate to how convincing the proposal is that the bidder would be able to successfully permit, finance, construct, and operate the power plant over the term of the plants' PPA and generation license. The scores for the non-price factors (except for air emissions) cannot be directly quantified, and involve judgment, but as described below, ICF organized that judgment by providing a

<sup>&</sup>lt;sup>1</sup> 2014 Firm Generation RFP, January 2014, Page 2 of 294.

graduated scale for the evaluators to apply in order to justify the numerical scores for these factors.

In the solicitation, the price factor was worth up to 80 points out of a possible 100, and the non-price factors were worth up to 20 points. This weighting towards price was intentional, since the bidders h ad already pre-qualified with regard to their project development experience and their financial wherewithal. Thus, the only non-price factors that ICF needed to evaluate were those related to this specific project. This weighting made it challenging for a bidder that was not the lowest in price to overcome that deficit through superior performance on non-price factors, unless their price was quite close to that of the lowest price bidder.

However, an important concept that applies to the non-price factors is the "fatal flaw". If a proposal was altogether inadequate on some of the non-price factors, that factor could have "killed" the bid, disqualifying it from further consideration. Thus, the non-price factors were more important than their 20 points would suggest. For example if the development plan was highly unconvincing that the project could be permitted and built, or if the financing plan was quite inadequate, then that bid could have been rejected on the basis of having a non-price fatal flaw.

The bidding and evaluation process was an open one. Before the bids were due, the bidders had both the pre-bid meeting in February 2014 and the period through April 14, 2014 to ask the ERA questions regarding the bidding and bid evaluation process. We fielded and responded to dozens of such questions. After the bids were submitted, ICF and the ERA in turn had ample time to ask the bidders questions about their proposals in writing, and we used that opportunity to do so to clarify quite a few items in their submittals. We wanted to ensure that we based our scoring on a clear understanding of the bids, and that our assessment reflected the best option for customers on Grand Cayman.

ICF undertook a comprehensive evaluation process for the bids that included the following steps:

- Agreeing in advance on how to evaluate the price and non-price portions of the bids
- Ensuring that the bids met the threshold criteria to be considered a valid bid
- Assigning experts to review each section of the bids, including:
  - Price analysis (80 possible points)
    - Non-price analysis (20 possible points)
      - Overall site development and permitting
      - Environmental Impacts
      - Equipment and fuel procurement
      - Financing
      - Construction and operations
- Analyzing the bids in these areas according to the number of points allocated to each factor per the framework set forth in the request for proposals.
- Consolidating and asking the bidders a number of questions to clarify their intentions and preparedness to build the required generation, and evaluating their responses

• Capturing the complexities of the price bids in spreadsheets designed to assess the numerous elements (including 14 different price indices), and determine their levelized costs per kWh

The next three sections summarize ICF's assessment of the threshold, price and non-price factors as applied to the proposals. We follow these sections with ICF's conclusion and recommendation on the best option for customers on Grand Cayman for the next 36 MW of firm capacity.

## **3.1 Threshold Factors**

The RFP specified that bidders must satisfy the requirements necessary for a Bidder to demonstrate the viability and seriousness of their Proposal. These requirements included:

- <u>A Letter of transmittal</u> identifying the Bidder entity and contact information, making affirmative statements regarding the Bidder's commitment not to engage in inappropriate behavior and to accept the key documents governing the power sector and the solicitation.
- <u>Site Control</u> Demonstration of control of a site on which the proposed generation facility will be located, either via ownership or valid option to purchase/lease.
- <u>Equipment Procurement</u> Evidence of a commitment or option from suppliers to provide key components (e.g., diesel generators(s), switchgear, etc.) in a time frame that will support the overall project schedule
- <u>Certificate of Need Requirements</u> Demonstration that the generating capacity proposed meets the terms of the CON.
- <u>Fuel Supply</u> Provides suitable evidence of the Qualified Bidder's ability to procure, transport and store non-renewable fuel for consumption by their generating units.

Each bidder provided the required threshold information for their projects, and ICF and the ERA questioned each bidder to ensure that they met these minimum standards. After thorough review, the ERA rejected CUC's bid for heavy fuel oil (HFO). The ERA concluded that CUC's HFO bid did not provide the minimum information necessary to demonstrate that CUC's HFO Bid was viable. In particular, the ERA concluded that, in respect of this bid, the information supplied by CUC was not sufficient to provide *suitable evidence of the Qualified Bidder's ability to procure, transport and store non-renewable fuel for consumption by his generating units* (see section 3.2.1.3 of the RFP).

This left the field of qualified bidders to include three firms: 1) CUC (with offers to use diesel fuel for one proposal and compressed natural gas – CNG -for another); 2) LBG (propane); and 3) DECCO (with two propane proposals). At this point it was clear that the process would be competitive as per the terms of the T&D Licence, as there was more than one proposal that met the threshold requirements.

Shortly after the ERA accepted the CNG bid, CUC withdrew it, and as a result ICF did not further evaluate this bid. ICF's analysis proceeded to a full evaluation of the four remaining proposals, on both the price and non-price factors. Below, we take each of these items in turn.

# **3.2 Evaluation of Bid Prices**

#### 3.2.1 Introduction

To evaluate the price components of the bids, ICF reviewed all four pricing proposals from the three bidders, as summarized in Exhibit 1. The difference between the two DECCO bids relates to different technologies and plant configurations.

Proposal	Size (MW)	Contract Term (years)	Fuel	Heat Rate @ 80% Dispatch
CUC Proposal	39.6 Gross/ 38.8 Net	25	Diesel	7,379 Btu/kWh
LBG Proposal	41.0 Gross/ 39.6 Net	25	Propane	8,124 Btu/kWh
DECCO Option 1	35.0 Gross/ 34.2 Net	25	Propane	8,359 Btu/kWh
DECCO Option 2	36.8 Gross/ 35.5 Net	25	Propane	8,119 Btu/lkWh

Exhibit	1:	The	Four	Bids	Eva	luated	bv	ICF
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The pricing bids submitted were available for review only after the bids were determined to have met threshold requirements as per the process defined in the RFP. As part of the evaluation process, ICF was provided access to the bid materials and follow up communications between the ERA and bidders.

According to the RFP, each pricing proposal was required to be for a term of not more than 25 years.<sup>2</sup> In the evaluation the expected annual level of generation was required to be based on a calculation shown in the CON under technical criteria to determine the annual production. Under this calculation, the annual level of generation (projected gross kWh output) would be equal to 85% x 8760 hours x gross rating in kW x 80% (where 85% refers to the average annual operating availability factor and 80% refers to the nominal level of dispatch by the T&D Licensee).

Bidders were required to submit two types of payments: fixed capacity charges (CI\$/kW-month) and energy charges (CI\$/kWh).

- Fixed Charges
  - Fixed Charge (CI \$/kW-month) includes capital recovery, profit, financing, transmission interconnection and upgrades. Under the fixed charge, bidders were required to ensure each index is publicly available (for at least the last five (5) years) and is appropriate for the nature of the costs to which they are applied; and to provide a range of fixed charges corresponding to a range of foreign exchange rates if the charges were subject to exchange rate risk.
    - Fixed Operations and Maintenance Charge (Cl \$/kW-month) –designed to recover O&M costs other than variable O&M, fuel and lubricating oil. As with the Fixed

<sup>&</sup>lt;sup>2</sup> 2014 Firm Generation RFP, January 2014, Page 3 of 294.

Charges, the bidders were required to ensure 5 years of public data be available to the ERA. In addition, if the bid was subject to foreign exchange risk, the bidder was required to provide a range of fixed charges for a range of foreign exchange rates.

- Energy Charges
  - Fuel Charge (CI \$/kWh) 100% pass through to customers
  - Lubricant Charge (Cl \$/kWh) 100% pass through to customers
- <u>Variable Charge</u> (CI \$/kWh) designed to capture variable O&M other than fuel and lubricating costs.
- <u>Fuel Consumption</u> though not a direct component of the price bid, fuel consumption is a relevant driver of prices and hence the calculation of fuel consumption in Imperial Gallons was required in the RFP. This also required that the heat rate of the unit at the level of operation specified in the CON be provided to allow for the determination of fuel consumption at that level.

The RFP indicates that scoring the price component of the proposals shall be based on levelized costs. ICF determined the levelized cost for each bid by discounting capacity and energy charges to a present value as a means of placing all projects on a common basis. Further, ICF used the same fuel price escalation over time for like fuels in different proposals, unless there was a demonstrated contractual difference between the future cost of fuel for an individual bidder.

The price evaluation reflected 80% of the points possible in the overall evaluation. The single lowest cost bidder received the maximum number of possible points while remaining bidders were scored based on their percentage price difference from the winner in the energy and capacity categories.

For the purposes of this project, ICF evaluated four bids (See Exhibit 1 above) consisting of varying fuel options and capital costs.

The CUC, LBG, and DECCO bid each relied on a number of indices. In order to evaluate the bids, ICF developed views on the movement in each of 14 indices employed by the bidders. Exhibit 2 below provides a list of the indices in each bid and the adjustment category to which it applied.

As noted above, bidders were required to ensure each index is publicly available (for at least the last five (5) years) and is appropriate for the nature of the cost(s). In many cases, the indices used are available only from a private vendor. ICF requested each bidder provide a minimum of one (1) year of the series from each vendor as a follow-up given many items were not in the public domain, however LBG did not provide their propane index sourced to Platts and DECCO provided only graphical representations. While ICF agrees to the reasonableness of the indices selected, we do caution that absent an agreement with the price vendor, these indices may not be readily available with the off-taker (CUC) or the ERA and may require a subscription fee for verification of the data used in actual billing practices. For purposes of this analysis, when information on subscription based indices was not directly available, ICF relied on publicly available data for comparable pricing points. Though we believe the overall trends with such indices will be similar to those based on the subscription products, the monthly price movements, and volatility of the actual indices, may not be fully reflected.

Index	Bids	Fuel	Lubricant Price	Fixed O&M	Variable O&M	Public Domain
Platt's Marketscan US Gulf Coast Low Sulfur Diesel Median Spot Price Waterbourne (LSD)	CUC	✓				
Platt's Marketscan US Gulf Coast Ultra Low Sulfur Diesel Median Spot Price Waterbourne (ULSD)	CUC	$\checkmark$				
North American Spot LPG Propane Price/Mont Belvieu Texas non-LST	DECCO, LBG	$\checkmark$				
ICIS Spot Price for USGC BS 150	CUC		✓			
ICIS Spot Price for USGC Neutral 600	CUC		✓			
U.S. Bureau of Labor Statistics Producer Price Index-Commodities Series Id: WPU057604, Not Seasonally Adjusted". Group: Fuels and related products and power Item: Lubricating and similar oils.	DECCO		✓			✓
Cayman Islands Consumer Price Index (CICPI)	CUC, DECCO, LBG			~	~	~
Euro F/X Rate	CUC			~	✓	✓
European Producer Price Index	DECCO, LBG				~	$\checkmark$
Price Index for Forgings published by German Federation Statistics Office	CUC			$\checkmark$	~	$\checkmark$
Price Index for Manufacturers of Founders published by German Federation Statistics Office	CUC			~	~	~
Price Index for Quality Bar Steel published by German Federation Statistics Office	CUC			~	~	$\checkmark$
Price Index for the Basic Wages for skilled workers doing piece work in the Bavarian metal working industry published by German Federation Statistics Office	CUC			~	~	✓
U.S. CPI	CUC			✓	✓	✓

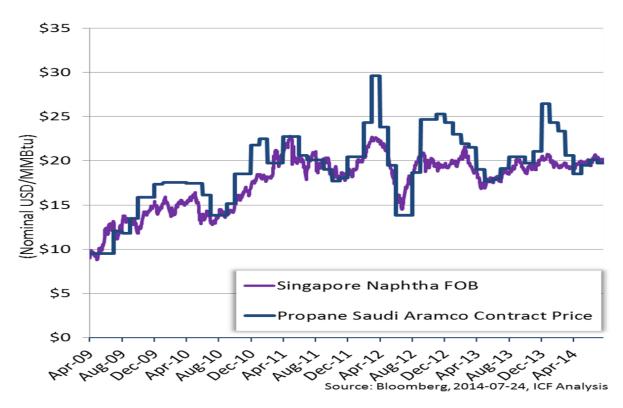
#### 3.2.2 Fuel Indices

The reference fuel index for CUC is the Platt's Gulf Coast Ultra Low Sulfur Diesel Waterbourne index. CUC also refers to a Low Sulfur Diesel index which is no longer published. As per their contract terms with the fuel provider, in the event this index is obsolete, the Ultra Low Sulfur Diesel index would be used with a negative adjustment derived from a formula in the contract. For USGC ULSD, ICF projected the long term USGC ULSD index to adjust at a rate consistent with ICF's current price projections for long-term pricing for crude and oil products. ICF applied escalation rates consistent with our own projections to estimate the USGC ULSD index and continued to apply the noted discount above to approximate the long-term fuel costs included in the CUC pricing proposal.

DECCO and LBG both rely on a propane index for Mont Belvieu. To estimate changes in the forward Mont Belvieu pricing, ICF estimated an increasing price in the near-term based on world oil market dynamics. This near-term pricing increase is based on expectations that currently discounted propane prices in North America will tend to rise to global market levels. ICF believes this view is justified as a price series built upon a well-established relationship between propane and naphtha prices. This method of indexation, employed by Saudi Aramco, forms the basis of the Aramco Contract Price (ACP), a global benchmark for wholesale propane prices. The current propane price at Mont Belvieu is significantly below the ACP, and therefore, on a \$/MMBtu basis, below naphtha. This is primarily a reflection of the lack of integration between the North America and global propane markets.

ICF expects for the long-term a continuing linkage between international propane prices and naphtha, currently the primary feedstock for the global petrochemical industry. As shown in Exhibit 3a below, the equilibrium price for propane on the international market has been closely linked to the price of naphtha on a \$/MMBtu basis. Recent trends in the industry suggest the bulk of additional propane supply to the international market will find a home in olefin production. The nearly completed shift to a lighter feed slate in the U.S., where ethane has become the preferred feedstock for ethylene crackers, has resulted in declining supply of propylene, the second most commonly used petrochemical after ethylene. In response, the past three years have seen a flurry of announcements by petrochemical operators in North America, Europe, and particularly in Asia, of planned investments in propane dehydrogenation (PDH) capacity. PDH plants employ custom-developed catalysts to convert propane directly into propylene.

Over the course of the next three years, as these facilities come online, ICF projects the consumption of propane by PDH facilities in China alone to grow at a rate nearly parallel with the increase in U.S. propane export capacity. As a result, there is little indication that the supply of propane to the international market will exceed propane consumption, resulting in a market that, as has historically been the case, is closely linked in price with the closest substitute feedstock – naphtha. ICF believes price movements will occur on the margin of this price relationship, with traders and petrochemical facility operators taking advantage of arbitrage when available.



#### Exhibit 3a: Long Term Naphtha/Propane Price Relationship

It is anticipated that the current trend to add export capacity will continue to the point of pricing convergence with the international markets. For example, as of April 2014, propane export capacity out of the U.S. was fully utilized, running at over 90% utilization for the month. In May 2013, due to a combination of timing issues and anticipated facility maintenance, exports actually exceeded nameplate capacity by 5%. This is after the terminal capacity more than doubled in 2013, relative to end of 2012 export capacity levels. ICF projects that over the next two years, as additional export terminals come on-line from Targa, Enterprise, Phillips66, Occidental, Sunoco, and others, the export bottleneck will be removed and as the North American market becomes fully integrated with the global market, international propane prices will align. ICF's long-term propane price forecast, therefore, accounts for:

- The reintegration of the world propane market and re-alignment of international propane prices
- The continuing relationship between naphtha and propane prices (and naphtha's near 1:1 price relationship with crude oil on a \$/MMBtu basis)
- A discounting of Mont Belvieu wholesale prices relative to the world market to account for the incremental cost of shipping the product to increasingly marginal destinations
- Growth in international demand for propane as a feedstock for the petrochemical industry, particularly propane dehydrogenation facilities recently commissioned or under construction.

In addition to the price projections above, ICF has evaluated the pricing proposals under two (2) additional alternate scenarios which adjust the price of propane relative to the price of diesel. For these additional scenarios, the diesel price discussed earlier was maintained while the propane was adjusted upwards (high propane price case) and downwards (low propane price case) relative to the base case projection discussed.

ICF's high propane price is derived by aligning propane prices closer to distillate. In the high price scenario, assumptions are:

- The world demand for propane will grow in line with supply
- US Gulf Coast propane prices will reflect only the discount for cost required to reach marginal consumers, with a 1:1 price indexing to naphtha on a \$/MMBtu basis
- ICF estimated cost for reaching marginal consumers in East Asia is \$0.35/U.S. Gallon once the Panama Canal opens for large propane vessels (VLGC). This cost is expected to escalate at the rate of the increase in cost of international shipping, which is driven primarily by the cost of fuel. As such, shipping costs will grow in line with the escalation in the price of diesel.

In the low propane price case, ICF assumes a continuation of the wide spreads between propane and ULSD reported in 2012 going forward. Though highly unlikely, this scenario projects propane prices remaining at 32% of the price of ULSD on a \$/gallon basis – the highest reported discount for propane relative to ULSD. ICF overall projects that propane prices will remain below diesel prices into the longer term, however the gap between the two will somewhat close over time as propane demand increases and supply costs increase. Exhibit 3b below provides a comparison of the ULSD forecast versus the three alternative forecasts for the Mont Belvieu propane index, translated into CI\$ per MMBTU.

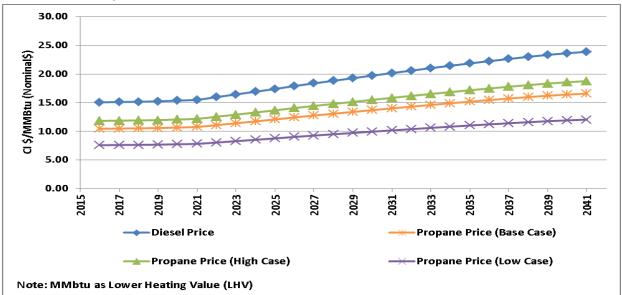


Exhibit 3b: Comparison of Fuel Price Trends

As can be seen in this graphic, the Mont Belvieu price is anticipated to remain at a discount to diesel for the forecast term under all scenarios.

Fuel transportation and other delivery related charges including wharfage are accounted for separately from the base fuel price. These components reflect additional charges for landing the fuel and delivering it to the plant. On a delivered basis, much of the fuel price advantage of propane resource is expected to be eliminated due to the individual facility delivery and wharfage charges. For example, using 2013 as a benchmark, the base diesel fuel price under the CUC proposal would have been US\$23.0/MMBtu versus US\$11.9/MMBtu for propane. When including the delivery component charges, the CUC pricing based on US\$23.0/MMBtu would increase to US\$31.0/MMBtu while the DECCO and LBG options would increase roughly to US\$22.9/MMBtu and US\$23.5/MMBtu respectively, from US\$11.9/MMBtu. As the propane price moves closer to the diesel price in any of the alternative forecasts, the propane fuel advantage, on dollar per MMBtu basis, diminishes.

#### 3.2.2.1 Fuel Pricing Exposure

Several of the proposals called for monthly adjusted fuel prices, and this adjustment would result in fluctuations in the fuel price passed through to customers on Grand Cayman. Many factors affect world petroleum prices, and the prices of these petroleum products, from worldwide events to the local duty assessed on their importation. To assess the potential for such movements and develop a forecast for evaluating the bids, ICF examined the historical monthly volatility in fuel prices for the ULSD and Mont Belvieu series. Exhibit 4 below presents the monthly pricing for each fuel from 2007-2014, showing how the price level and differential between the prices has varied over time.

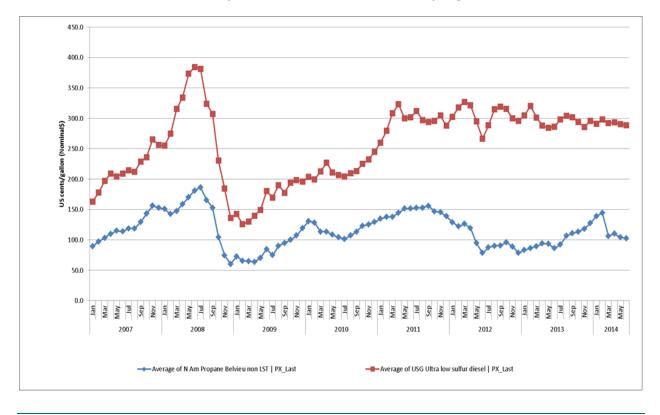


Exhibit 4: Historical Diesel and Propane Prices, 2007-2014 (US cents per gallon)

#### Source: Bloomberg

Historically, significant volatility has existed in the monthly prices of both propane and heating fuels. This is expected given the linkages to world energy markets, potential supply disruptions, and limitations on refineries. Though we do not account for these values explicitly in the annual price analysis used to compare bids, given our pricing forecasts are adjusted to reflect annual averages, these pricing differences are accounted for in the analysis. Our analysis shows that diesel fuel tends to be slightly less volatile on a monthly basis than propane and hence the CUC bid is less exposed to pricing volatility than the DECCO and LBG bids. This is an additional consideration when weighing the relative price advantages of one fuel versus the other.

#### 3.2.2.1.1 Fuel Heat Content

An important factor to consider in addition to the fuel sources is the heat content of the fuels. In all cases, the bidders had relied on a lower heating value for the heat rate of the facility as a component on their expected fuel consumption. Given that the fuel quality between the LBG and DECCO bids were similar, ICF relied on an independent source for the propane heat content. For consistency the same source was used for the diesel fuel content. The lower heating value (LHV) heat content assumptions used were 154,238 Btu/Imperial Gallon for diesel and 100,280 Btu/Imperial Gallon for propane as reported by Massachusetts Institute of Technology (MIT) Energy Club <sup>3</sup> for consistency in our analysis.

#### 3.2.2.2 Lubricant Indices

For adjustment to lubricant pricing, CUC relies on ICIS quotes for specific fuels while DECCO and LBG rely on the US based PPI for oil based products (U.S. Bureau of Labor Statistics Producer Price Index-Commodities Series Id: WPU057604, Not Seasonally Adjusted". Group: Fuels and related products and power Item: Lubricating and similar oils.) ICF has assumed that the value of these indices will escalate at the same rate over time based on an extrapolation of the PPI series quoted.

#### 3.2.3 O&M Related Indices

Below a summary of assumptions for major indices employed by bidders to adjust O&M is provided.

- Consumer Price Index Growth Rate Cayman Islands: ICF assumes the annual forward trend for this index will be consistent with the ten-year historical annual average compound growth in the series. Our estimate is based on the historical compound annual average growth between 2004 and 2013 data as reported in the Cayman Island Consumer Price Index Report 2014.
- European Producer Price Index: ICF assumes the annual forward trend for this index will be consistent with the ten-year historical annual average compound growth in the series. Our estimate is based on the historical compound annual average growth between 2004 and 2013 data as reported in the OECD Website for European Union Producer Price Index. <u>http://stats.oecd.org/index.aspx?DatasetCode=MEI\_PRICES\_PPI</u>

<sup>&</sup>lt;sup>3</sup> MIT Energy Club Units & Conversion Fact Sheet report <u>http://mitenergyclub.org/sites/default/files/Units\_ConvFactors.MIT\_EnergyClub\_Factsheet.v8.pdf</u>

- U.S. CPI: ICF assumes the annual forward trend for this index will be consistent with the ten-year historical annual average compound growth in the series. Our estimate is based on the historical compound annual average growth between 2004 and 2013 data as reported in the U.S. Bureau of Labor Statistics, Consumer Price Index All Urban Consumers, Series ID: CUSR0000SA0, Not Seasonally Adjusted. <u>http://www.bls.gov/cpi/</u>
- *Exchange Rate*: ICF assumed exchange rates, C.I. dollars to U.S. dollars and Euro to U.S. dollars, will remain constant at U.S. 1.1905 and U.S. 1.3801 respectively.
- Price Indices published by German Federation Statistics Office for Forgings, Quality Bar Steel, Manufacturers of Founders are based on following methodology:
  - Compound annual growth rate over the last ten years (2004-2013) data.
- Price Index for the Basic Wages for skilled workers doing piece work in the Bavarian metal working industry published by German Federation Statistics Office is based on the average of 3.4% (July 1 2013) and 2.2% (May 1, 2014).
  - CUC mentioned that publication of changes to wages depends on negotiations between the parties from time to time, hence it happens at varying intervals. The attachment CUC provided describes a pay increase of 3.4% from July 1, 2013, and another one of 2.2% from May 1, 2014. The agreement is valid until December 31, 2014.

#### **3.2.4 Levelized Cost Calculations**

In order to calculate all-in levelized costs for proposals, ICF developed cash flow streams for the cost items defined above by utilizing indices described above. ICF then calculated annualized cash flows by using 10-percent discount rate in our base case. The 10 percent discount factor is tied to CUC's long-term cost of capital as provided by the ERA.

#### 3.2.4.1 Results

Exhibit 5 provides the annual levelized prices in CI\$/kWh for each of the bids evaluated by component. As discussed above, the impact of volatility on fuel pricing could also result in price movements not reflected in the annual trend, as such adjustments were considered based on fuel price volatility described above.

Cost Item	Unit	CUC Proposal- 1 Diesel Fuel	LBG Proposal-1	DECCO Proposal-1 Wartsila	DECCO Proposal-2 Solar
Fixed Charge (Capacity)	Cl \$/kWh	0.0329	0.0896	0.0609	0.0791
Total Fixed O&M Charge	Cl \$/kWh	0.0108	0.0279	0.0271	0.0179
Fixed Costs	Cl \$/kWh	0.0437	0.1175	0.0880	0.0969
Fuel Charge	Cl \$/kWh	0.1650	0.1764	0.1772	0.1721
Lubricant Charge	Cl \$/kWh	0.0031	0.0000	0.0016	0.0000
Variable O&M Charge	Cl \$/kWh	0.0108	0.0022	0.0056	0.0019

#### Exhibit 5: Proposal Pricing Results with Base Case Fuel and 10% Discount Rate

Variable Costs	CI \$/kWh	0.1789	0.1787	0.1844	0.1741
Total Levelized Cost	Cl \$/kWh	0.2226	0.2961	0.2724	0.2710

The largest single component of the price bids is the fuel component. As shown in Exhibit 5, fuel costs alone, not including lubricants, account for roughly 63 percent of the total cost in the propane bids and nearly 74 percent in the diesel bid. In terms of fuel price in \$/kWh, though the propane is a lower priced fuel, due to the efficiency conversion of and delivery charges to the proposed facilities, the cost of fuel on a per kWh basis is higher for propane than for the diesel facilities and hence, the unit level fuel charge is higher. The levelized fuel costs range from 16.5 to 17.7 cents, and on a total variable cost basis, the four proposals remain close to each other, ranging from 17.4 to 18.4 cents per kWh, or a difference of just over 0.5 cent per kWh at the high end. In contrast, the fixed charge components of the bids are considerably different. The fixed costs vary from 4.4 cents to over 11.7 cents, or a difference of about 7.4 cents at the high end. As such, the fixed charges are the greatest determinant of the price differences between the bids.

Given the uncertainty about future fuel prices, rates of return and economic conditions, ICF believes that it was important to test the sensitivity of the results to changes in the key assumptions. Exhibit 6 shows how the levelized cost would have changed using the alternative fuel prices.

Bid	Base Case Price	High Propane Price Case Price	Low Propane Price Case Price
CUC Proposal	0.2226	0.2226	0.2226
DECCO Option 1	0.2724	0.2901	0.2409
DECCO Option 2	0.2710	0.2882	0.2404
LBG	0.2961	0.3133	0.2655

#### Exhibit 6: Levelized Costs Based on Fuel Price Sensitivities (CI\$/kWh)

In addition, ICF qualitatively assessed the heat rate characteristics of the plants ability to affect the pricing result. That is, as per the RFP, the bids were evaluated at the efficiency that corresponds to 80 percent loading. This assumption, should the facilities tend to operate more efficiently at other loading points, could penalize the bid pricing results through not utilizing the more efficient heat rates seen at full load for some prime movers. As our analysis did not involve a production cost simulation of the system, we considered how pricing would be affected if it were assumed instead that the same full load of 100 percent was applied to all bids. Under this qualitative review, ICF determined that the CUC

option was slightly disadvantaged as their facility design seems to be optimized for 80 percent load and the heat rate is slightly higher at full load. In contrast, the DECCO and LBG are advantaged as their heat rates at full load are several percentage points below their heat rates at 80 percent. With these assumptions, the gap in the total levelized costs between the least cost bid and the second ranked bid reduces by approximately 1 cent levelized per kWh. Even with this decrease, the difference between the least cost and second ranked bid remains over 15%. While we did not directly consider this analysis in the price bid ranking results below, it is supportive of the results. Based on the analysis above, Exhibit 7 provides the base case price scores for the four proposals.

	Results Based on Base Case						
Bid	Price (Cl\$/kWh)	Rank	Percentage Adjustment	Price Score			
CUC Proposal 1	0.2226	1	0%	80			
DECCO Option 2	0.2710	2	22%	63			
DECCO Option 1	0.2724	3	22%	62			
LBG	0.2961	4	33%	54			

#### Exhibit 7: Proposal Scoring on the Price Factor

Our analysis includes forecasts of the indices provided above. As described above, we evaluated changes in the largest single factor, the relative prices of diesel fuel and propane. If the actual future level of the indices for other factors diverged from the projections, then the levelized costs would change as well. However, we do not believe that any of the indices could change so rapidly or to such an extent as to change the conclusion that CUC's overall price would rank at the top of the list.

## 3.3 Non-Price Factors (20 Possible Points)

#### 3.3.1 Summary of Bid Scores

Exhibit 8 summarizes ICF's evaluation of the non-price factors for the four bids from the three qualified bidders. In total, this chart shows that CUC scores the highest on these factors, garnering 17.86 out of 20 possible points. LBG comes in next, about 2.4 points below that, with a total of 15.42 points, and the DECCO bids finish in third and fourth places, at 11.52 and 9.99 points.

None of the bids were judged to have a fatal flaw, though several of the bids received the lowest possible points (one or zero) in various categories. The balance of this section contains ICF's evaluation of each of these factors, for each of the bids, providing the basis for the scores below.

#### Exhibit 8 – Summary Non-Price Scores for all Bids

Non-Price Factors	Maximum Points	сис	LBG	DECCO #1	DECCO #2
Overall Site Development, Permitting, Interconnection and Utilization of Existing Infrastructure					
Site Development and Permitting	2	2	1	0.5	0.5
Permitting Timeline	1	1	1	0.25	0.25
Transmission Interconnection and Infrastructure	1	1	0.75	0.75	0.75
Environmental Impacts					
Air Quality Impacts	2	0.36	1.42	1.77	1.24
Adverse environmental impacts	2	2	1.5	1	0.5
Fuel and Equipment Procurement Plans					
Long-term Fuel Procurement	2	2	1.5	1.5	1.5
Equipment Supply Plan	2	2	2	2	1.75
Financing Plan					
Equity/Bank Commitments and Pro Forma	3	2.5	1.5	1	1
Construction and Operation Plan development					
Construction and Operations Plans	3	3	3	2.75	2.5
Training and Safety Plans	1	1	1	0	0
Staffing Plan	1	1	0.75	0	0
Total	20	17.86	15.42	11.52	9.99

# **3.3.2** Overall Site Development, Permitting, Interconnection and Utilization of Existing Infrastructure (Including Land, Noise and Water Impacts) (4 Points)

#### 3.3.2.1 Site Development and Permitting (2 Points)

The purpose of this factor is to determine the compatibility of the proposed site for its intended use, the potential for any off-site adverse or community impacts; and the potential for any permitting problems. Exhibit 9 shows the RFP matrix and the scores for this element:

	Strong Development Plan	Good Development Plan	Weak Development Plan
Low Impacts Indicated	2 - CUC	1.5	1
Moderate Impacts Indicated	1.5	1 - LBG	0.5 – DECCO #1 and DECCO #2
Severe Impacts Indicated	1	0.5	0

#### Exhibit 9 – Development and Permitting Scoring Matrix

#### CUC

This proposal contains a strong development plan. The new facility would be located on the bidder's site which is zoned for heavy industry and currently occupied by an operating diesel power plant. The area for new construction is cleared and physically ready for development. The bidder demonstrates a thorough understanding of the major permits needed to complete the proposed expansion. Coordination of the expansion has occurred through discussions with Department of Environment (DOE) and the Petroleum Inspectorate (PI). CUC is the largest water user among the bidders, so a relevant focus of the development plan is on both the expanded withdrawal of ground water and the expanded waste water discharges back into the environment. Both are demonstrated to be appropriately planned as well as very likely to be successfully permitted in a timely manner.

It appears that there will be low impacts from the operation of the proposed facility. Construction of the expanded facility raises no environmental concerns given the cleared status of the affected site. Also, from the operation of a new facility, there is no indication of any off-site impacts to sensitive land uses since neighboring uses are predominantly industrial. The CUC proposal would involve the construction of the tallest structure of any of the bids. The new engine exhaust stacks are planned to be at the same height above sea level, 42.5 meters, as the existing and adjacent engine exhaust stacks. Because the latter were approved in consideration of flight paths and proximity to the airport, adverse flight safety impacts are not expected. Visually, low impacts would result from the exhaust stacks given the predominantly industrial nature of the surrounding area. Finally, a low impact rating is appropriate

because unlike any other of the bids, the CUC proposal does not require the construction of any off site infrastructure.

The strong development plan combined with the indicated low impacts justifies a score of 2.0 points.

#### Louis Berger

LBG proposes a good development plan. The bidder has executed an offer to purchase a site that is zoned heavy industrial in an area that includes other industrial uses. The bid demonstrates effective permitting coordination with the DOE and the PI. The development plan is not rated as a strong plan, however, due to a lack of both an in-place plan to dispose of wastewater and the lack of a completed Phase I site assessment associated with an offer to purchase the site.

Moderate impacts are indicated from the operation of the proposed facility. Specific to the operations at the proposed site, there is no indication of any off-site impacts to sensitive land uses, and LBG is not proposing the construction of any marine infrastructure. Estimated noise levels at the closest property boundary would be the lowest of any of the bids at 45 dB(A). The maximum height of the facility would occur at the expansion tanks of the heat recovery steam generators which will extend approximately 19.4 meters (63 feet) above grade level. This would be the second lowest maximum structural height of all of the bids. Although some new power line poles may be needed for the proposed interconnection, the potential environmental impact is addressed and described as minimal because the entire interconnection route of approximately 1600 feet (492 meters) runs through an industrial area. However, the sources of the moderate impacts are (a) mainly from the need for a major increase in ship traffic to meet propane fuel needs; and (b) less significantly from the necessary increase in fuel storage capacity at the HomeGas facility.

The good development plan coupled with the indicated moderate impacts receives a score of 1.0 points.

#### DE*CCO #1*

The DECCO #1 bid contains a weak development plan. Similar to the other bids, the proposed site is well suited for the proposed use. It is adjacent to the CUC power complex; is physically clear, requires no demolition; and has soil Investigation reports. The site is zoned as heavy industrial and physically ready for development. Where the plan breaks down is in its lack of required coordination with agencies such as the DOE and the PI. The bidder did not meet with these agencies but indicates that its gas supplier, HomeGas did. However, this is neither a sufficient substitute for the RFP's required agency coordination nor does HomeGas' summary of its meeting with the PI include any discussion of the DECCO #1 proposal. Rather, the HomeGas meeting summary only covers Home Gas' storage expansion plans. Additionally, the bid contains no in-depth discussion of either major permitting issues needs or strategies, and only provides a page of permit requirements copied from a publically available document from the Planning Department. This does not demonstrate sufficient understanding of how DECCO will meet the permitting requirements for the 36 MW that would be constructed.

As with the LBG and CUC proposals, most of the off-site environmental impacts from this proposal would not be problematic, given their low anticipated impacts and the predominantly industrial neighbors. However, noise levels are estimated to be up to 76 dB(A) at the site boundaries which

greatly exceeds the estimated levels for the LBG [45 dB(A)] and CUC [65 dB(A)] proposals as well as the 70 dB(A) World Bank guidelines for commercial/industrial areas. There are also moderate impacts for two of the same reasons as the LBG proposal, i.e., mainly from the need for a dramatic increase in ship traffic in order to meet propane fuel needs and, less significantly, from the necessary increase in fuel storage capacity at the HomeGas facility. A third source of expanded impacts unique to both DECCO proposals is the bidder's consideration of constructing a fuel delivery sub-sea pipeline from ship to shore. Extensive marine impacts could result and DOE has already voiced permitting concerns for any bid that includes new marine infrastructure.

The weak development plan coupled with the indicated moderate impacts results in a score from the matrix above of 0.5 points.

#### DECCO #2

This proposal would use the same site as DECCO #1, and the bid information provided for this factor is basically the same as that provided for the DECCO #1 bid. Additionally, the development plan is somewhat weaker than DECCO #1's because DECCO #2 requires both water wells and injection wells which are not substantively discussed in terms of any permitting plans or possible issues. Based on an overall similar development plan and permitting information, DECCO #2 receives the same point score as DECCO #1, or 0.5 points.

#### **3.3.2.2** Permitting Timeline (1 Point)

The purpose of this factor is to determine the sufficiency of the bidders' knowledge, plans, and completed due diligence for securing environmental permits within the project development timeframe. Exhibit 10 shows the RFP table and scores for this factor:

The time allotment for permitting in the development timeline was				
Highly convincing	1.0 Points (CUC and LBG)			
Convincing	0.75 Points			
Somewhat convincing	0.5 Points			
Questionable	0.25 Points (DECCO #1 and DECCO #2)			
Unconvincing	0 Points			

#### Exhibit 10 – Permitting Timeline Scoring Table

#### CUC

CUC's time allotment for permitting in its development plan is highly convincing. This is based on CUC's demonstrated knowledge of and experience in the affected permitting processes; the coordination that has occurred to date with the Water Authority of the Cayman Islands (WAC) and DOE; and the

proposed, expanded use of an operating diesel power plant site The proposed time allotment for permitting is realistic at three to six months. The full point is awarded.

#### Louis Berger

This portion of the proposal is very well presented, as the time allotment for permitting in the development period is highly convincing. It includes an approximately seven month period. The bid reflects that the proposed generating facility is a major, new undertaking and includes time for responding to permitting questions and possible re- design issues. The full point is awarded.

#### DECCO #1

The time allotment for permitting in its development timeline is questionable. A four month estimate was provided for securing all major environmental permits. No discussion was provided regarding either any permitting complexities that might arise from a proposed propane powered facility or any ongoing efforts to address permitting issues that could arise. Rather, a rote description of the permitting process was provided along with the shortest timeline of any of the bids, i.e., four months. This questionable timeline is awarded 0.25 points.

#### DECCO #2

The same information regarding a permitting timeline is submitted for this bid as for DECCO #1, even though this bid also proposes using three water wells and two injection wells. The time allotment for permitting is similarly questionable, and the bid is awarded 0.25 points.

#### 3.3.2.3 Transmission Interconnection and Infrastructure (1 Point)

The purpose of this section is to determine the strength of the bids with respect to their use of existing infrastructure and the strength of the transmission interconnection plan. Use of existing infrastructure refers to such factors as the extent to which the Qualified Bidder utilizes a brownfield site; uses existing structures and facilities; and minimizes the need for new construction. The strength of the transmission interconnection plan refers to such factors as the proximity of the generation to the substation; the adequacy of the right of way; the ease of procuring the right-of-way; and the Qualified Bidder's respect for the environmental issues involved in the development of the line. Exhibit 11 shows the matrix used to score this factor.

	Strong Consideration to the use of Existing Infrastructure	Moderate Consideration to the use of Existing Infrastructure	Weak Consideration to the use of Existing Infrastructure
Strong Transmission Interconnection Plan	1	0.75	0.5
Moderate Transmission Interconnection Plan	0.75	0.5	0.25
Weak Transmission Interconnection Plan	0.5	0.25	0

#### Exhibit 11 – Transmission Interconnection Scoring Matrix

The maximum score for transmission for any qualified bidder is 1 and the minimum score is 0. The qualified bidder would receive a better score if they utilize a brownfield site and find ways to use existing structures and facilities to minimize the need for any new construction. The qualified bidder would also receive a higher score if the proposed generation facility is located close to the interconnecting substation and adequate right of ways are easily available in addition to the ease of procurement of the required right of ways. Exhibit 12 summarizes ICF's evaluation and the key transmission features of these proposals.

Parameter	LBG	CUC	DECCO #1	DECCO #2
Transmission Interconnection & Infrastructure Score	0.75	1	0.75	0.75
Strength of Interconnection Plan	Moderate	Strong	Strong	Strong
Use of existing infrastructure	Strong	Strong	Moderate	Moderate
Interconnecting Substation	69 kV North Sound substation	69 kV North Sound substation	69 kV North Sound substation	69 kV North Sound substation
Distance between Plant and interconnecting substation (Feet)	1,600	60	1,230	1,230
Overhead/Underground	69 kV Overhead Line	13 kV Underground cable	69 kV Underground cable	69 kV Underground cable

#### Exhibit 12 – Summary of ICF's Transmission Interconnection Assessment

#### CUC

CUC has proposed to interconnect at the 69 kV North Sound Substation which is 60 feet away from the proposed generating plant (closest location to interconnection point). CUC has proposed to construct a 13 kV underground cable from the plant to the North Sound substation. The 13/69 kV step up transformers will be located in the substation itself. CUC's proposed generating plant makes full use of existing infrastructure as it is located in the same complex as the North Sound substation. For the same reason, the procurement of rights of way is not an issue. The CUC proposal thus has given strong consideration to the use of existing infrastructure and has a strong interconnection plan, and ICF assigns the CUC bid a score of 1 for the transmission interconnection portion of the proposal.

#### Louis Berger

LBG has proposed to interconnect at CUC's 69 kV North Sound Substation, approximately 1,600 feet (492 meters) from the proposed generating plant. LBG has indicated that they propose to use an existing overhead transmission line passing along northern alignment and Lancaster Crescent routes. As a contingency, LBG noted that if CUC or ERA would deny the usage of the existing overhead line, they would propose the placement of new transmission poles along the same route. In its proposal, LBG has

made a good-faith effort to utilize existing structures and facilities and minimize the need for new construction. LBG's proposal has given strong consideration to the use of existing infrastructure.

In comparison to the other bids reviewed, LBG's proposed plant is located farther from the North Sound substation. In addition, if there is a need to place new infrastructure, procurement of right of way could be an issue since the proposed route of the line crosses the property 19E220 and the Lancaster Crescent route crosses Sparky's road. Due to these reasons, ICF believes that LBG has a moderate interconnection plan. Based on the rating matrix given in the RFP, ICF assigns the LBG bid a score of 0.75 for the transmission interconnection proposal.

#### DECCO Options 1 and 2

Both DECCO options 1 and 2 have identical transmission interconnection plans. DECCO has proposed to interconnect at CUC's 69 kV North Sound Substation adjacent to the proposed generating plant. The North Sound substation is about 1,230 feet from the plants' location. DECCO has proposed to construct a 69 kV underground cable from the plant to the North Sound substation. Although the proposed plant is adjacent to the North Sound substation, DECCO has not investigated any existing infrastructure and they have not indicated in their proposal an effort to utilize available existing structures or facilities. Therefore ICF believe that the DECCO proposal has made moderate consideration to the use of existing infrastructure. The proposed site is across the Sparky's road which is located close to the North Sound substation. The acquisition of right of way for construction of the 69 kV underground cable should be straightforward, and there would likely be minimal environmental issues associated with an underground cable. Therefore ICF believes that the DECCO proposal has a strong interconnection plan. Based on the rating matrix given in RFP, ICF assigns the DECCO bid a score of 0.75 for the transmission interconnection proposal for both the options.

# **3.3.3 Environmental Impacts (including Air Quality, Water Quality and Waste Management) (4 Points)**

#### 3.3.3.1 Air Quality Impacts (2 Points)

#### 1. General Approach

ICF evaluated each project plan's emissions profiles for air quality based on emission data submitted by the projects. The projects submitted emission data in the following four categories:  $NO_X$ ,  $SO_X$ , PM, and  $CO_2$ . We checked to ensure that the emissions rates claimed were reasonable. Each category is eligible for the same maximum score of one-half (0.5) points. ICF assigned the maximum score to the project with the lowest emission rate in each category. The remaining bids received points scaled to the lowest emission rate in the category.

#### 2. Assumptions and Conversions

ICF made conversions necessary to directly compare emission rate entries across all bids. Specifically, ICF converted the entries for each project plan's bid to a common unit of measurement, grams per kilowatt-hour, if the entries were not already provided in those units. ICF used a conversion factor of 0.002205

pounds per gram. For the CUC bid, ICF conducted the assessment based on weighted average emission rates equivalent to a fuel mix of 60 percent No. 2 diesel oil and 40 percent ultra-low sulfur diesel.

3. Emissions Rate Calculations

Exhibit 13 provides the emissions rates for each project, which ICF converted into common units of grams per kWh for comparison. One factor to note is the propane bids' absence of SOx emissions, and lower emissions in general compared to diesel fuel.

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	LBG	CUC	DECCO #1	DECCO #2
NO <sub>X</sub> (g/kWh)	0.53	12.51	0.18	5.14
SO <sub>X</sub> (g/kWh)	-	1.10	-	-
PM(g/kWh)	0.14	0.34	0.07	0.08
CO₂(g/kWh)	287	578	531	551

Exhibit 13 - Emission Data Provided by Projects, Converted into Common Units

ICF awarded points to projects based on the rates in the table above. As mentioned, in each category, ICF awarded the lowest emission rate the maximum of one-half (0.5) points. The remaining proposals were scaled to that bid based on the percentage difference from the lowest rate. For example, a Bidder with an emissions rate 5 percent greater than the lowest bid received (0.5)(1-0.05) = 0.475 Points.

Exhibit 14 provides ICF's scoring of the emissions profile of these projects.

		5115		
	LBG	CUC	DECCO #1	DECCO #2
NO <sub>X</sub>	0.17	0.01	0.50	0.02
SO <sub>x</sub>	0.50	0.00	0.50	0.50
PM	0.25	0.10	0.50	0.47
CO <sub>2</sub>	0.50	0.25	0.27	0.26
Total Score	1.42	0.36	1.77	1.24

Exhibit 14 – Bidder Scores for Air Emissions

Based on the approach described, the DECCO #1 bid received the highest total score, earning 1.77 points out of the maximum 2.0 points for the Air Quality Impacts. It earned the full one-half point in each of the NO<sub>x</sub>, SO<sub>x</sub>, and PM categories based on having the lowest emissions of all the bidders in these areas. The LBG bid received the maximum score in the  $CO_2$  category. Note that the CUC bid did not receive any points for the SO<sub>x</sub> category as it was the only bid with an emission rate greater than zero. The other bids each received the maximum score in that category.

The scores above are based on the emission rates as reported by the bidders. As noted, LBG received the maximum number of points for the CO<sub>2</sub> category because of its reported emission rate, which is much lower than the other bids despite its reliance in a similar fuel. ICF calculated alternative CO<sub>2</sub> emission rates for each of the projects based on the project heat rates (at 80% load) and fuel-specific emission contents from the Energy Information Administration (EIA) and arrived at the following: 513 g/kWh for LBG, 540 g/kWh for CUC, 527 g/kWh for DECCO #1, and 512 g/kWh for DECCO #2. These rates are similar to those reported for all bids except LBG. Relying on these calculated rates for scoring in place of the reported rates, LBG and DECCO #2 would receive the maximum 0.5 points, CUC would receive 0.47 points, and DECCO #1 would receive 0.49 points. This evaluation would bring the total scores to 1.99 for DECCO #1, 1.48 for DECCO #2, 1.42 for LBG, and 0.58 for CUC.

# **3.3.3.2** Environmental impacts pertaining to process input and byproduct handling and storage (2 Points)

The purpose of this factor is to determine how well the bidder understands the major needed inputs for its proposal and provides for their appropriate handling, storage, and disposal under current environmental requirements. Although the quantities of various inputs and waste products may vary by proposal, the focus is on the adequacy of the proposed infrastructure and disposal practices to meet current requirements for controlling possible adverse environmental impacts during handling, storage, use, and disposal. Exhibit 15 shows the RFP matrix and scores for this factor:

	Strong Consideration of handling and storage	Moderate Consideration of handling and storage	Weak Consideration of handling and storage
Strong Consideration of disposal	2 (CUC)	1.5	1
Moderate Consideration of disposal	1.5 (LBG)	1 (DECCO #1)	0.5
Weak Consideration of disposal	1	0.5 (DECCO #2)	0

Exhibit 15 – Matrix for Scoring Environmental Impacts of Storage and Disposal

#### CUC

CUC demonstrates a strong consideration of handling and storage requirements for a successful operation. Its proposal represents a continuation of the handling and storage practices of the current power plant. For example, although CUC's proposal would regularly use and dispose of the largest amount of groundwater of any of the proposals, CUC demonstrates that its groundwater withdrawal and discharge system can meet water quality permitting requirements. CUC identifies and proposes to use existing on-site handling and storage systems which are functioning in compliance with current permits. The same can be said for CUC's existing disposal practices which the bidder explains can

adequately handle the estimated increases in waste loads. CUC demonstrates a strong consideration of necessary disposal practices resulting in a total score of 2 points.

#### Louis Berger

LBG demonstrates a strong consideration of handling and storage. It includes a comprehensive discussion of major inputs. It demonstrates successful coordination with major source suppliers such as the Water Authority regarding the need for 400,000 US gallons of potable water per month. LBG's consideration of disposal practices, however, is moderate because it does not provide an acceptable disposal process for its largest waste product, blow down water of approximately 90,000 US gallons per month. As a result, LBG is awarded 1.5 points.

#### DECCO #1

This bid demonstrates a moderate consideration of fuel handling and storage. The bidder addressed the required information but in some instances only generally. For example, the response to the water supply strategy is that very small volumes of make-up water are required for the proposed closed loop system. Also, a moderate consideration is demonstrated with respect to disposal practices. Although no unusual disposal needs are indicated, as compared to other bids, the bidder did not provide evidence of commitments or options to dispose of oily water, estimated at 5.6 gal/MWh. Rather, the bidder indicates that it understands that an off island disposal system is presently in place. This bidder is awarded a score of 1 point given these two moderate ratings.

#### DECCO #2

This bid demonstrates a moderate consideration of fuel handling and storage. As with the DECCO #1 bid, the water supply strategy is only generally discussed with a description that "the plant expects to have three wells". The expected quantity of water needed is detailed but not the feasibility of being able to withdraw that quantity. From a waste disposal perspective, there is a weak consideration of disposal practices. The largest sources of the proposal's waste streams, the cooling tower blow down and boiler blow down water, are to be discharged into two injection wells. No discussion is provided as to the feasibility or acceptability of the use of these proposed injection wells. The moderate rating on handling and storage combined with the weak rating on disposal results in a 0.5 point score.

#### 3.3.4 Fuel and Equipment Procurement Evaluation

#### 3.3.4.1 Fuel Procurement

The purpose of this factor is to evaluate the strength of the fuel procurement plan with respect to transport, delivery, supply commitment and storage. There are a number of sub-factors important to evaluating the bids with regard to fuel procurement. In specific, we evaluated the strength of the bids on the basis of their ability to effectively: demonstrate an ability to safely deliver fuel; secure a five year supply commitment; show continued supply adequacy beyond this term; provide ten days of fuel storage; ensure fuel procurement at lowest possible cost; install and maintain accurate, regularly calibrated meters; mitigate operational and environmental risks connected to fuel transport and; other

related elements described in detail below. Exhibit 16 summarizes ICF's rating of these sub-factors, on a scale ranging from – (two minuses) to ++ (two plusses), and our rating of each of the proposals. Below the table, we explain these ratings in more detail.

· · · · · · · · · · · · · · · · · · ·			
FUEL	CUC	LBG	DECCO 1-2
FULL	Diesel	Propane	Propane
Can fuel be safely delivered to site?	++	+	+
Length of initial supply commitment?	++	++	++
Assurance of later commitments?	+	+	++
Transport to gen site?	++	+	+
Inventory Storage Plan?	+	+	+
Procurement process to assure lowest	++	+	+
cost?			
Meters included?	++	++	++
Final Rating	2.0	1.75	1.75

CUC

- CUC has a proven history of reliable diesel supply from both suppliers to the Cayman Islands, and the CUC owned pipeline to the generating facilities is more reliable than other alternatives such as trucking. The replacement of the Esso contract with SOL should sustain quality operations to Grand Cayman.
- The contract commitment is clear for the first 5 years, though the following years are dependent on the outcome of negotiations. CUC appears to have a sound process for future procurements, with two very reliable suppliers and the option for them to alter their bid quote based on the percentage of supply provided. CUC indicates that future contract negotiations are also open to other parties.
- The existing contract and generating facilities consume about 90,000 IG daily, and the new equipment will require just under 30,000 IG daily. The CUC proposal indicates that after retirement of older equipment, the demand following implementation of the new generation will be about 100,000 IG daily<sup>4</sup>.
- CUC has planned for a minimum of 21 days of physical inventory on Grand Cayman (suppliers must hold no fewer than 14 days, and the minimum on site is 7 days. The increased demand with the new asset will lower the days of supply from 21 to perhaps 19. This remains adequate security, however over time CUC should consider more storage if demand increases further.
- Meters will be included.

<sup>&</sup>lt;sup>4</sup> "...CUC currently has on-site an installed storage capacity of 1,722,010 IG consisting of 3 bulk fuel tanks and three intermediate tanks equivalent to approximately 17 days of on-site installed storage capacity which accounts for the proposed and existing generation running at full load."

Overall the CUC diesel supply plan builds on a very sound and reliable operation and is given a score of 2.0 points.

#### LBG Propane and DECCO Propane

These proposals were evaluated similarly, as they both rely on HomeGas to arrange the supply of propane, and utilize an identical supply chain to the generation site.

The addition of propane into the fuel mix in Grand Cayman would be a significant change, and the bids reflect the potential benefit of propane as a cost effective fuel. In both bids (LBG and DECCO 1/2), there are several areas of concern relative to the CUC diesel proposal:

- The ability of the supplier to arrange for propane appears a bit less reliable than the diesel supply sources. Without a major supplier behind the propane supply coming in from Carib LPG, and to date no alternate supplier identified, it may become increasingly difficult for both LBG and DECCO to secure propane at Mont Belvieu wholesale prices. Loading fees and product availability are expected to become increasingly constrained for smaller, pressurized or semi-refrigerated LPG carriers as all new export capacity is built to accommodate fully refrigerated very large gas carriers (VLGCs).<sup>5</sup>
- In LBG's response to an ERA question on the heating value of propane as a fuel, LBG uses what appears to be the HD-5 propane quality definition, which allows for minimum 90% propane, maximum 5% propylene, and a mix of other gases, including butane and ethane. U.S. Export-grade propane, however, is nearly pure C3H8, fully de-ethanized and de-butanized. The Lower Heating Value (LHV) of export-grade propane is 100,280 Btu/IG.<sup>6</sup> Internationally-traded LPG is in fact of varying quality and varying heating value, however, so it is possible that propane acquired from sources other than the Gulf Coast may have a different heating value. This injects some uncertainty in the propane quality which does not exist for diesel.
- The use of 5 movements daily of 11,000 gallon trucks are likely to provide reliable supply. However, the movement of these large transports may over time cause issues with roadway integrity as well as community concerns. This mode of transport is seen as less desirable to the community than a pipeline.
- Both projects make mention of expanding storage at the Walkers Road facility and at the plant site. No mention is made of how this equipment will be acquired and brought to Grand Cayman. The current midstream infrastructure build out in the U.S. has strained production capacity for a variety of materiel. Recent contacts with the industry

<sup>&</sup>lt;sup>5</sup> Targa, the largest operator of pressurized or semi-refrigerated LPG export capacity in the U.S. has brought online the first of its two-phase expansion project in 2013 Q4, and will is expected to complete its expansion in 2014 Q3. The company is expected to prioritize VLGC loading. The port of Corpus Christi is also slated for a large fullyrefrigerated loading terminal, with OXY projecting start-up in early 2015.

<sup>&</sup>lt;sup>6</sup> The Higher Heating Value of propane, as reported by the U.S. Energy Information Administration, is 3.836MMBtu/U.S. bbl, or 109,686 Btu/IG.

have suggested it takes approximately 15-months from order to delivery for a large LPG storage tank.

- DECCO's proposal is judged slightly better than LBG because of the longer initial commitment (10 years vs 5 years) and the apparently more thorough commitment arrangement with HomeGas.
- Meters are included in both proposals.

Overall the LBG and DECCO propane bids are a shade less robust than the CUC diesel bid, primarily due to a somewhat untested supply model at volumes that are much higher than the current HomeGas demands. Both are rated at a score of 1.75.

#### 3.3.4.2 Equipment Supply Plan Accounts for the Cayman Environment (2 Points)

This factor evaluates the strength of the bids' equipment technical specifications as well as to assess the commitment or option from the chosen equipment supplier(s) to provide key components in a time frame that supports the overall project schedule. Exhibit 17 shows the scoring for this factor:

Supply Plan Was	
Highly Convincing	2 Points (CUC, LBG, DECCO#1)
Convincing	1.5 Points*
Somewhat Convincing	1 Point
Questionable	0.5 Points
Poor	0 Points

Exhibit 17 – Scoring Table for Equipment Supply

\* DECCO #2 was awarded 1.75 points

To receive the full two points, the proposal should include a firm commitment from a supplier for key equipment and evidence that it can be secured in a timeframe to complement the schedule. Exhibit 18 summarizes our review, indicating that all the bidders have a highly or very convincing plan for equipment supply.

	Max Points	LBG	CUC	DECCO#1	DECCO#2
Evidence of Achievable Equipment Procurement Plan	2.0	2.0	2.0	2.0	1.75

#### Exhibit 18 – ICF's Scoring for Equipment Supply

#### CUC

The CUC bid has a commitment with MAN Diesel and Turbo ("MDT") for two 18V 48/60B diesel engines, steam turbine, as well as, all "balance of plant" components. The engines will use #2 diesel fuel. MDT is a German based leading manufacturer of diesel engines. Over the last 15 years on four separate engagements, MDT has supplied CUC with over 68 MW of capacity based on similar diesel engine types. All these previous projects have met original project schedules. Cooling the steam will be performed through standard closed loop towers with water provided by deep wells drilled on site. Of the four bids, this combined cycle configuration has the lowest heat rate at 7,379 Btu/kWh.<sup>7</sup> The purchase and shipment timing of the major equipment is documented and incorporated into the 17-month generic construction schedule. While the overall documentation appears complete, it is not well organized. Nevertheless, based on these observations we have awarded the full 2.0 points to the CUC bid.

#### Louis Berger

The Louis Berger bid has a commitment from GE for a 2x1 configured combined cycle power plant. The plant will be based on the GE LM1800e engine providing a net full load capacity of 39.6 MW. The gas turbines are expected to burn propane. It is expected to be extremely reliable with a rating of 99.9 percent and an availability rating of 97.9 percent.<sup>8</sup> At approximately 80 percent of base load, the heat rate is expected to be 8,124 Btu/kWh (LHV).<sup>9</sup> There are two reasons for the higher heat rate than CUC on this option: i)The LM1800e is a technology from the 1990s) and ii) this configuration employs an ACC which will minimizes water usage and has a 4-5% heat rate penalty associated with its use. Condensing the steam to water is performed through an air cooled condenser to minimize water usage and environmental impact. Finally the purchase and shipment timing of the major equipment is well documented and incorporated into the overall construction schedule. For these reasons, we have awarded the full 2.0 points to the Louis Berger bid.

#### DECCO

DECCO has submitted two options to this RFP. For the first option ("option #1") DECCO has a commitment from Wartsila for five 20V34SG diesel generator sets. Each engine is rated at 6.995 kWe.

<sup>&</sup>lt;sup>7</sup> This heat rate is rated at 80 percent of full load with the facility operating in the combined cycle mode

<sup>&</sup>lt;sup>8</sup> Reliability rating only accounts for forced outages, while availability accounts for both forced outages and scheduled maintenance outages. Aside from being reliable engines in their own right, Louis Berger is proposing a third engine to be used as a spare. As a result of being able to either swap parts or engines, outage times at the plant are minimized.

<sup>&</sup>lt;sup>9</sup> This is at new and clean condition, with no degradation.

In its commitment letter, Wartisla states it will be providing a "turnkey" power plant. Delivery dates are dependent on the date of order. An itemized list of all systems that will be provided by Wartsila is also included in the proposal. The engines will use LPG as the primary fuel. Wartsila is a Finnish company and one of the world's leading manufacturer of diesel engines. Wartsila has delivered almost 600 MW of capacity to the Caribbean area. As the plant will be run in a simple cycle configuration water usage is at a minimum. Of the four bids, this simple cycle configuration results in the highest heat rate at 8359 Btu/kWh.<sup>10</sup> The purchase and shipment timing of the major equipment is documented and incorporated into their overall 26-month generic schedule. Tentatively, the engines are planned to be delivered in late spring/early summer of 2015, leaving approximately 12 months for construction and testing. For the above reasons, we have awarded the full 2.0 points to DECCO's option #1 bid.

For the second option ("option #2") DECCO plans to build a 2x1 configured combined cycle power plant. The plant will be based on two Solar Turbines' Titan gas turbines, rated at 13.4 MW each. The turbines will use LPG as the primary fuel. The associated steam turbine will be provided by Dresser-Rand and has a gross capacity of 10 MW. The heat recovery steam generator will be provided by Rentech. Cooling the steam will be performed through standard closed loop towers manufactured by TowerTech. Water is to be supplied through on-site wells. The wells will require drilling. The expected net full load capacity of the plant is 35.5 MW. The net heat rate at full load is expected to be 7,640 Btu/kWh and at 80% load is expected to be 8,119 Btu/kWh.

Unlike the other bids, this will have most of its key equipment manufactured by a variety of different companies. As a result it will require significant project management to keep everything coordinated. Solar Turbines is a US based company and one of the world's leading manufacturers of distributed generation sized gas turbines. DECCO has secured firm quotes for all major equipment. The shipment timing of all major equipment is documented and incorporated into their overall 24-month generic schedule with the steam turbine having the longest lead time of 52–weeks. Tentatively, the delivery of all major equipment is planned for delivery in late spring/early summer of 2015, leaving approximately 12 months for construction and testing. For the above reasons, we have awarded 1.75 points to DECCO's option #2 bid

ICF would like to point out that all the technologies used in the bids are mature technologies and should not have any technology risk.

#### 3.3.5 Financing Plans (3 Points)

#### 3.3.5.1 Equity/Bank Commitments and Pro Forma

In the SOQ process, all Qualified Bidders were determined to have the financial wherewithal for these projects, so in the evaluation phase, this factor focuses on the Bidders' plans to finance the 36 MW of generation proposed. In this context, the evaluation takes into account:

<sup>&</sup>lt;sup>10</sup> This heat rate is rated at 80 percent of full load

- The sources and reliability of short-term (construction) financing
- The sources and reliability of longer-term financing (e.g., credit rating, access to capital, proven experience in raising capital for power generation)
- The projected profitability of the project and the risks to such profitability
- The comprehensiveness of the Bidder's overall plan for financing

Exhibit 19 shows the RFP matrix, and our scoring, with ICF's evaluation below:

	Strong Equity and	Moderate Equity and	Low Equity and
	Bank Commitments	Bank Commitments	Bank Commitments
Strong	3	2	1
Pro Forma	2.5 - CUC	1.5 - LBG	
Adequate Pro Forma	2	1	0.5
Weak Pro Forma	1 – DECCO #1, DECCO #2	0.5	0

Exhibit 19 –	Scoring	Matrix for	Financing	Plans
	0001116			

#### CUC

With regard to the pro forma, CUC's submittal is mostly strong. The projected revenue from capacity and energy payments matches well with their pricing bid. Major costs such as for fuel; principal and interest charges; fixed and variable O&M (both for ongoing, regular O&M and for major overhauls); and for depreciation are specified and reasonable. The interest rate assumed for long-term debt (4.0%) is in line (even above) other financing facilities that CUC has recently been granted for 15 and 20 years. The risk to the profitability of the units is low since many of the costs (e.g., vendor costs, interest rates, and currency) will be fixed at closing/contract signing. That said, CUC has offered a lower price for capacity than the other bidders, reflecting a lower rate of return, which will translate into lower prices for consumers, but which does inject some financial risk into this project, even though it is being financed at a corporate level.

With regard to the equity and banking commitments, CUC's submittal is also mostly strong. CUC has firm commitments from RBC for facilities sufficient for the short-term construction financing (e.g., Facility D provides \$31 million until April 15, 2015, and CUC plans to use this for early payments). They plan to use the private placement market (PPM) for approximately \$40 million by late 2014 or early 2015 for long-term financing, and CUC has strong access to the PPM in the US capital markets, as demonstrated by the \$50 million in such financing they received in 2013 (at interest rates of 3.34% and 3.54% for 15 and 20 years, respectively), and the currently attractive market for "A" rated utilities. Both S&P and DBRS rate CUC at the "A" level, which is a strong rating for a utility. CUC has proven its ability to raise long-term capital to finance generation in the past as required.

While convinced that CUC will have no problem financing these units, we requested and would like to have seen more detail on the specific PPM options which CUC would consider or approach (the RFP asked about such "commitments"). We will make a deduction for this gap, placing their score on the horizontal axis in the table above between "strong" and "moderate". We would also like to have seen a pro forma for scenarios which showed how profitability would change due to unexpected events such as much greater O&M in the 15-20 year time frame, given that some CUC units have had failures, but by that time, even with such an event, the positive cash flow of these units would remain strong. CUC's overall score on the financing element is 2.5 out of a possible 3.0 points.

#### Louis Berger

With regard to LBG's pro forma, they have provided a solid pro forma reflecting all the elements required: projected revenues (capacity and energy); fuel expense, O&M expenses (both for "normal" years and for years of major overhauls); ongoing capital expenditures; depreciation; project management, etc. The resulting pro forma is solidly profitable, as the expenditures in the construction period are offset and the project achieves a positive cash flow in a reasonable time frame.

One facet of the pro forma (and the price bid) is that LBG does not escalate fuel prices at all. All other relevant items are increased at 2.0%, the presumed rate of Caymanian inflation. While fuel costs are a pass-through, and thus do not affect the profitability of the project, we would have expected to see some assumption on changes in fuel prices, which are tied to a Platts index. Also, there was no discussion of which factors could cause the profitability of the project to move up or down (e.g., changes in interest rates, exchange rates or O&M costs) and the likelihood of these factors deviating from the base case assumptions in the pro forma. Financial institutions would want to see such "stress tests", and this would have improved the pro forma portion of the proposal. Thus, we rank this proposal between adequate and strong in terms of its pro forma.

With regard to equity and banking commitments, in their initial proposal, LBG indicates that they have engaged Houlihan Lokey and Standard International Group (SIG) to fund construction and on-going commercial operations of the project. These firms are eminently qualified to carry out this work, and clearly have excellent contacts and experience with the tasks for which LBG has engaged them. While there is a listing of the potential sources from which these firms may solicit financing, LBG indicates that "Houlihan Lokey and SIG have not formally solicited commitment letters", though a number of institutions have expressed preliminary interest, both due to the attractive projected returns and the fundamentals of investing in the Cayman Islands. We have no doubt that LBG would be able to finance the project with the support of Houlihan Lokey and SIG. However, this ranking is designed to reflect "commitments" more than experience and contacts, and thus LBG cannot receive top marks in this category. Further, the proposal makes no distinction between construction and long-term financing – often there are different sources for each, as CUC's proposal indicates. Section 3.2.2.7 of the RFP requested that bidders "Identify planned funding sources during project development, construction, and long-term financing".

In response to questions, LBG demonstrates convincingly that they are familiar with potential sources of capital, identifying numerous Tier I investors) which could readily supply the capital required. In this regard, their submittal was better than CUC's. They also provide three letters from such firms. However, only one of those makes a statement of intent to the effect that "We would propose to underwrite and provide up to \$170 million of financing, to be split between debt and equity...", but it goes on to say that this letter is "solely an indication of interest and does not constitute a commitment". The other two letters indicate strong interest as well, and indicate that further due diligence is required before they could make a commitment. While this process of screening sources of capital is typical, and we do not doubt that LBG can finance this generation, the direct access to capital is not firmly demonstrated. LBG's submittal is moderate with regard to this criterion.

The overall score for LBG on their financing plan is thus 1.5, reflecting an adequate-to-strong ranking for the pro forma, and a moderate score on the financing commitments element of this evaluation factor.

### DECCO #1 and #2

DECCO has indicated that it plans to initially finance these projects 100% with equity. Thus, the question of access to debt from other financial institutions is not applicable for this stage of the project for DECCO. They have thus indicated a "strong" equity commitment in the matrix above. We note that equity is generally higher cost than debt, and that DECCO may thus be expecting to finance the project later should it be the winning bidder, but that is a matter for DECCO to decide.

With regard to their pro forma, DECCO declined to provide this information to the ERA despite a written request to do so after the bids were submitted. They indicated that the profitability of the project is of private concern, since they are not a regulated entity. They also indicate that the profitability of the project would be of concerns to private lenders, and that since they are not using such lenders at this time, it is not necessary for them to submit a pro forma.

DECCO misinterprets the ERA's intentions. It is also the ERA's concern as to whether the project is profitable, since the ERA wishes the bidder to not have to compromise on capital investments or O&M to achieve profitability, and does not want to see a project get into financial trouble and possibly have to be sold early in the project's operation. We therefore rank DECCO as having a "weak" pro forma, since there is no basis on which to rate them more highly.

Combining the two factors in the matrix above, the total score for the two DECCO bids on their financial plan is therefore 1.0 out of a possible 3.0.

# **3.3.6 Construction and Operations Plans**

# **3.3.6.1 Construction and Operations Plans are sound and account for the Cayman** environment (3 possible points)

Exhibit 20 shows the RFP matrix and our scoring of the proposals on this factor.

	Strong Operational Plan	Adequate Operational Plan	Weak Operational Plan
Strong Construction Plan	3 – CUC, LBG 2.75 – DECCO #1	2	1
Adequate Construction Plan	2.5 -	DECCO #2 1	0.5
Weak Construction Plan	1	0.5	0

Exhibit 20 – Scoring Matrix for Construction and Operations Plans

Proposals were scored on the following two considerations: (1) evidence of an achievable construction plan and (2) evidence of a strong operations and maintenance plan. The construction plan refers to the bidder's on time delivery of key components; the deployment of construction labor and road development and site preparation. The operational plan refers to such factors as: the bidder's recognition of the ambient conditions on Grand Cayman; how the maintenance plan will assure performance that meets the CON requirements; and how the plan will maintain the equipment in a reliable fashion.

Exhibit 21 below shows the scale and ICF's scoring of the four proposals for construction and operation:

Bid	Assessment	Score
CUC	Strong Construction Plan, Strong Operational Plan	3.0 points
LBG	Strong Construction Plan, Strong Operational Plan	3.0 points
DECCO #1	Strong Construction; Adequate/Strong Operational Plan	2.75 Points
DECCO #2	Adequate-to-Strong Construction and Operational Plans	2.5 Points

Exhibit 21 – ICF's Scoring of Bidders' Construction and Operations Plans

### 3.3.6.2 Evidence of Achievable Construction Plan

The ERA requests 36 MW of generating capacity, of which the first unit should be available for operation by May 1, 2016, and the second unit should be available one month later for operation by June 1, 2016. To qualify for the full points, the project must have reasonable timeframes for planning and permitting coupled with a construction deadline that leaves adequate time for testing and unit commissioning ahead of the commercial on-line dates (COD) outline above. Furthermore there should be a wellqualified EPC contractor managing the whole process.

#### CUC

As mentioned earlier, CUC and MDT have maintained a strong relationship in the supply and procurement of diesel engines for service in Grand Cayman. As part of that strategic alliance, the partnership has included Burmeister & Wain Scandanavian Contractor A/S ("BWSC") of Denmark as the Engineering, Procurement and Construction ("EPC") Contractor. BWSC has provided EPC services to power plants for many utilities in the Caribbean including Barbados, Bermuda and the Bahamas. MDT has secured commitments with BWSC to provide complete EPC services for this project. As this team has built the last three main power plant projects, local code adherence should be straightforward. The CUC bid lays out a generic construction plan totaling 17 months or slightly over 500 days. The first diesel genset will have a projected COD of April 2016 and the second genset and steam turbine commissioned by May 2016. To meet these deadlines CUC expects a project start date of December 2014. The installation will occur at an existing power plant site owned and operated by CUC. Key equipment will be designed to withstand hurricane force winds and potential earthquakes. Based on these observations we deem CUC to have provided a strong construction plan.

#### Louis Berger

The Louis Berger proposal lays out a very clear construction plan totaling almost 600 days with an October 2014 start date and projected COD of April 2016 and May 2016 for Units #1 and #2 respectively. Louis Berger will serve as overall manager of all construction activities but it has also secured a letter of

commitment from the Cayman firm Arch & Godfrey to provide engineering and construction services for the power plant. Arch & Godfrey has been in the heavy construction business in Grand Cayman for four generations. As a Cayman firm, local code adherence should be straightforward. AES will serve as the fuel storage contractor. GE will support the installation and commissioning of the power plant. The site is zoned for "Heavy Industrial" usage and is currently being used as storage area for construction materials. Key equipment will be designed to very stringent hurricane and earthquake standards. As a result of these observations we also consider LBG's construction plan to be strong.

#### DECCO

As mentioned earlier for Option #1, DECCO has a commitment with Wartsila to design, build, own and operate the power plant. Part of that commitment is for Wartsila to provide Engineering, Procurement and Construction ("EPC") services. Wartsila has provided EPC services to over 4,500 power plants across the world and almost 600 MW of capacity for utilities in the Caribbean. As DECCO has extensive experience in permitting and the local site approval process, this team should be able to meet local code requirements. The DECCO's bid lays out a generic construction plan totaling 26 months. All five diesel genset will have a projected COD of April 2016. The installation will occur on approximately 4 acres of land that is zoned as "Heavy Industrial" and is contiguous to the existing power plant complex owned and operated by CUC. Key equipment will be designed to withstand hurricane force winds and earthquakes. Based on these observations we believe DECCO's Option #1 construction plan is between strong and adequate.

DECCO has for Option #2, a commitment from Polaris Engineering to provide Engineering, Procurement and Construction ("EPC") services. Polaris is a heavy construction company based in the US with an office in St Croix. Polaris was originally focused on the crude oil refining business but has more recently ventured into other industries such as power plant construction. It appears from their quals package that Polaris has built two power projects in the Caribbean. As DECCO has extensive experience in permitting and the local site approval process, this team should be able to meet local code requirements. For option #2, DECCO's bid lays out a generic construction plan totaling 24 months. The first gas turbine and steam turbine is expected to have a COD of April 11<sup>th</sup> and the second gas turbine will a COD of May 23<sup>rd</sup> 2016. The installation will occur on the same acreage of land as in Option #1. Key equipment will be designed to withstand hurricane force winds and earthquakes. As this work is going through their St Croix office, Polaris is expected to hire at least 95% local Caymanian labor for the construction phase. Based on these observations we believe DECCO's Option #2 construction plan is between strong and adequate.

#### 3.3.6.3 Evidence of a Strong O&M Plan

#### CUC

CUC will use existing staff to both operate the facility and conduct maintenance. As mentioned above CUC has extensive experience operating similar facilities in Grand Cayman. CUC's current work force is 90 percent Caymanian. CUC expects the addition of two new employees for this project and they are expected to be trained in Germany. CUC states that all mechanical maintenance staff are required to be factory trained at the engine manufacturer's facility. CUC proposes to use its own staff to perform all routine scheduled maintenance as required based on the OEM's recommendations. It is expected that

CUC will conduct all minor and major maintenance including overhauls with in-house, on-island staff. As a result of their extensive experience with similar engines and the need for only two additional staff, ICF would award full points to the CUC proposal for a strong O&M plan.

#### Louis Berger

Louis Berger will enter into a long-term service agreement (LTSA) with GE (the OEM for the major equipment), for the major maintenance aspects of the generators. Major maintenance plans are presented in a clear way and consistent with "industry" practice. In addition to this, LBG is including a spare LM1800e engine to minimize scheduled and major overhaul outages. For everyday routine maintenance Louis Berger and GE will maintain a core staff for the first two years of operations. During this time period, LBG/GE staff will train Cayman technicians on the management and operations of the facility consistent with prudent operating practices. After which LBG will turn the routine maintenance responsibilities to Cayman technicians. While LBG has limited experience, GE staff brings to the team extensive experience in operating commercial power facilities. As a result ICF would award full points to the LBG proposal for a strong operational plan.

#### DECCO

For Option #1, DECCO has commitments with Wartsila under an Operations and Maintenance Agreement. Under this agreement Wartsila will provide not only maintenance, but will also operate the facility over the 5-year term of the agreement. Based on these views, ICF considers the DECCO operational plan to fall between strong and adequate for Option #1.

For Option #2, DECCO has commitments with Polaris Engineering under an Operations and Maintenance Agreement. Under this agreement Polaris will operate the facility. Under various Extended Service Agreements, Polaris intends to use the key equipment manufacturers to provide 100% of the routine and emergency maintenance requirements of the plant. Based on these views, ICF considers the DECCO operational plan to fall between strong and adequate for Option #2.

#### **3.3.6.4 Training and Safety Plans (1 Point)**

This section evaluates the bidders' training and safety plans for handling accidents should they occur and training personnel to keep them up to date on the best practices for plant operation, efficiency, cyber security and emissions control. Exhibit 22 shows the RFP matrix and our scoring.

	Strong	Adequate	Weak
	Safety Plan	Safety Plan	Safety Plan
Strong Training Plans	1 (CUC, LBG)	0.75	0.5
Adequate	0.75	0.5	0.25

#### Exhibit 22 – Matrix for Scoring of Training and Safety Plans

Training Plan			
Weak	0.5	0.25	0 (DECCO #1,
Training Plan			DECCO #2)

### CUC

CUC's training plans include factory training at the manufacturer for mechanical maintenance staff, 2 years training and/or associate level degree for technicians and 4 year degrees for engineers. CUC invests approximately 30 hours per year per employee in training programs and has an established track record for furthering the education and training of their workforce. CUC has also submitted with their bid an extensive training guide for employees, further demonstrating their commitment to workforce development. Therefore CUC is awarded the full score for this category.

#### Louis Berger

The training plan outlined in the LBG plan includes a one week course conducted by GE as well as on the job training throughout the construction phase of the facility. The plan outlines how LBG will train new employees and describes annual training provided by the company on electrical health and safety and system cyber security. Training programs will adapt to changes in system configuration and be designed to facilitate effective real-time management. These will include both classroom learning and semi-annual training exercises to evaluate training. LBG's safety plan is extensive and provides thorough details with regard to safety training, accident prevention and response and first aid training. In light of LBG's leveraging of GE's expertise to bring new employees up to speed, given LBG's commitment to high quality, adaptive learning with regular updates and self-evaluations, and due to their high level of commitment to employee safety, they are awarded the full score for this section.

#### DECCO

Under Option #1, DECCO provides an operations and maintenance plan proposal from Warstila for the staffing and operation of the facility. A short description of the site personnel and commitment to safety are included as part of the project execution plan, but there is no description of safety procedures and the scope and methods used to ensure safety onsite. Furthermore, no details could be found related to staff training and development. Therefore, ICF awards 0.0 points to the DECCO #1 bid for providing no training or safety plan.

DECCO provides some information about training and safety under the description of Polaris Engineering's O&M experience in Appendix L. The material provided outlines a program of managing 12 "hands-on training" units to facilitate onsite operator training and lists 14 elements as part of Polaris' Process Safety Management program. However the information is cursory, generic and provides no insight into the scope of these programs, how they will be implemented in this project, the level of investment for the employees to promote their development and continued training, nor does it provide sufficient details with regard to the safety program elements to assess the scope and breadth of the procedures and the extent to which they effectively address the purpose of this section. Both the safety

and training programs are determined to be weak in this case and therefore ICF awards 0.0 points to the DECOO #2 bid in this category.

# 3.3.6.5 Staffing Plan (1 Point)

This section is intended to assess the relevant experience of those who will occupy key positions in the development, construction, finance and operation of the generating units; the extent to which the plants' operation is automated; and the total number of construction and permanent jobs. Exhibit 23 shows the RFP matrix and scoring for the bidders' staffing plans, with ICF's evaluation below.

	High	Moderate	Low
	Utilization of Caymanian Labor	Utilization of Caymanian Labor	Utilization of Caymanian Labor
Strong	1 (CUC)	0.75	0.5
Staffing Plan			
Adequate Staffing Plan	0.75 (LBG)	0.5	0.25
Unconvincing Staffing Plan	0	0	0 (DECCO)

Exhibit 23 – Matrix for Scoring of Bidders' Staffing Plans

# CUC

The CUC proposal sets forth a plan to use 65% Caymanian labor for construction and us its existing staff for operations and maintenance. This labor force is 90 percent Caymanian as described above in the context of the CUC O&M plan. CUC will require from engineers and technicians staffed to this plant to have at least ten years of experience prior to commissioning. Given the strength of CUC's current workforce and the processes in place to ensure sufficient substantive experience among the core staff of the facility, CUC is awarded the full score for this category.

# Louis Berger

LBG clearly outlines the level of experience and the specific technical skills required at each level of plant management and operation. The staff plan provides a clear organization structure and very well elaborated levels of substantive knowledge, experience and proficiency required at each level of the organization. LBG does not currently have operations staff on Grand Cayman but their staffing plan is strong and well developed and provides a clear trajectory for reaching a 100% share of Caymanian labor onsite by year 3 of plant operation and therefore LBG is awarded a score of 0.75 for this section.

#### DECCO

As described above in the context of the Operations and Maintenance plan, DECCO has commitments with Wartsila for option #1 under an Operations and Maintenance Agreement for Wartsila to operate the facility over a 5-year term. While it is clear that Wartsila has extensive experience in maintaining and operating diesel engine based power plant and plans to use 19 staff to operate the facility, it is unclear as to how Caymanians are expected to be employed or whether this operating agreement will be renewed past the initial 5 years. Furthermore, the proposal offers no information on the staffing plan beyond the high-level organizational charts provided on pages 158 and 170. In particular, there is no information provided regarding the relevant experience of the 19 employees in the proposed organization, their specific function or their required level of experience. Based on these views, ICF determined that this bid does not provide an adequate staffing plan and therefore awards points 0.0 to the DECCO proposal for Option #1.

Under Option #2, DECCO has commitments with Polaris Engineering under an Operations and Maintenance Agreement to operate the facility. The bidder indicates that during construction all but three positions (95-97%) will be filled by local labor, but it is unclear what fraction of the 20 permanent jobs will be sourced locally. Although Polaris has provided operational support experience on other projects, it is unclear how extensive that experience is and whether they have provided similar levels of support over the required timeframes and with similar systems. Furthermore the staffing plan for the proposed facility is not well elaborated and the specific experience required of each staff member and the substantive expertise for the proposed team is not provided beyond the roles and responsibilities of the two key project management team members provided in section 2 of Appendix M. This does not constitute an adequate staffing plan and therefore ICF awards DECCO 0.0 points in this category to the DECCO proposal for Option #2.

# 4 **Overall Scoring of Proposals**

In light of the foregoing, ICF assessed the total scores for the bids as shown in Exhibit 24. Based on this assessment, ICF recommends that the ERA accept CUC's bid as the best for Grand Cayman customers.

## Exhibit 24 - Total Bid Scores (Out of 100 Possible Points)

	CUC	LBG	DECCO #1	DECCO #2
Price Factor (80 possible)	80	54	62	63
Non-Price Factors (20 possible)	17.86	15.42	11.52	9.99
TOTAL	97.86	69.42	73.52	72.99

#### **TABLE 1: Summary of Charges for CUC**

-	Capacity Charge (Cl\$/kW-Month)	Fixed O&M Charge (CI\$/kW-Month)	Fuel Charge (Cl\$/kWh)	Lubricant Charge (CI\$/kWh)	Variable O&M Charge (CI\$/kWh)
2014		3.75	0.18834	0.00101	0.00771
2015					
2016	15.29	4.00	0.14902	0.00122	0.00822
2017	17.37	4.13	0.14943	0.00134	0.00849
2018	17.10	4.26	0.14978	0.00147	0.00876
2019	16.99	4.40	0.15033	0.00162	0.00905
2020	16.77	4.54	0.15133	0.00178	0.00934
2021	16.50	4.69	0.15239	0.00196	0.00965
2022	17.04	4.84	0.15581	0.00215	0.00996
2023	16.90	5.00	0.15929	0.00236	0.01028
2024	16.54	5.17	0.16276	0.00260	0.01062
2025	16.88	5.33	0.16629	0.00285	0.01096
2026	16.48	5.51	0.17009	0.00314	0.01132
2027	15.80	5.69	0.17352	0.00345	0.01169
2028	16.18	5.87	0.17683	0.00379	0.01207
2029	15.78	6.06	0.18017	0.00416	0.01246
2030	14.54	6.26	0.18352	0.00457	0.01287
2031	14.33	6.46	0.18678	0.00503	0.01329
2032	13.82	6.67	0.18995	0.00552	0.01372
2033	13.92	6.89	0.19312	0.00607	0.01417
2034	14.90	7.11	0.19621	0.00667	0.01463
2035	14.54	7.35	0.19921	0.00733	0.01510
2036	13.06	7.58	0.20213	0.00806	0.01559
2037	12.48	7.83	0.20494	0.00886	0.01610
2038	11.80	8.09	0.20766	0.00973	0.01662
2039	10.94	8.35	0.21020	0.01070	0.01717
2040	10.40	8.62	0.21230	0.01176	0.01772
2041	6.06	8.90	0.21422	0.01292	0.01830

#### Notes:

(1) All values listed in **bold** were taken from the Bidder's proposal.

(2) All non-bold values reflect ICF escalation based on the Bidder's instructions, including:

Fixed (Gross) and Variable (Net) O&M Charges escalated, beginning in 2015, as per the formula from APPENDIX B17 in the Bidder's proposal (see formula below) and based on ICF projections for the following Bidder-proposed indices defined in Exhibit 2 of the ICF Report: US\$/EURO of 1.3801 (no change); 2.36% annual change for Forgings (S) Index; 1.71% annual change for Quality Bar Steel (St) Index; 1.73% annual change for Founders (G) Index; 2.80% annual change in wages for skilled workers (L) Index; 2.34% annual change in the US CPI; and a 2.14% annual change in the CI CPI;

P = the maximum value of [P0/100] x {[((US\$/Euro)/(US\$/Euro)) x {[3x(S/S0]] + [5x(S/S0]] + [5x(G/G0)] + [38\*(L/L0)]]} + [10x(USCPI/USCPI0)] + 35x(CICPI/CICPI0)]} or 2% p.a. increase

- The Bidder's Fuel Charge (Net) base component of Cl\$0.13999 per kWh. Forward years were based on ICF projections for annual pricing for USGC ultra-low sulfur diesel.
- The Bidder's Fuel Charge (Net) "other" component, including transportation, suppliers' margins and Government duties, was not escalated except for a reduction in fuel duty, as announced by the Government, from CI\$0.75 per Imperial Gallon to CI\$0.50 per IG and beginning in 2015;
- The Bidder's Lubricant Charge (Net) was escalated, beginning in 2015, as per the formula in APPENDIX B14 of the Bidder's proposal (i.e., percentage change in ICIS Spot USGC BS 150 Mid x 15% + percentage change in ICIS Spot USGC Neutral 600 Mid x 85%) with ICF projecting both indices escalating by 9.90% annually;

(3) The Bidder's Capacity Charge is subject to EURO risk at the Notice to Proceed date.

(4) To calculate the levelised cost per kWh ICF did the following:

-Calculated the per kWh cost of Fixed charges based on the expected annual generation of the plant in accordance with the formula set out in the RFP and the CON using the plant's net capacity

- -Costs in 000\$ for each component of cost for each period in the 25 year PPA were discounted to a present value using a 10% discount factor XNPV(Discount rate, periodic series values)
- -The Net present Value of the periodic costs computed in step 2 above were then levelised assuming periodic payment consistent with the expected Net Generation over the horizon to determine levelized per kWh rate.

TABLE 2:	Summary	of Charges	for LBG
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2014	Capacity Charge (CI\$/kW-Month)	Fixed O&M Charge (CI\$/kW-Month)	Fuel Charge (CI\$/kWh) <b>0.14010</b>	Lubricant Charge (CI\$/kWh)	Variable O&M Charge (CI\$/kWh)
2014 2015			0.14010		
2015	37.66	11.72	0.16171		0.00190
2010	38.42	11.96	0.16208	_	0.00190
2017	39.20	11.90	0.16241	-	0.00194
2010	40.00	12.20	0.16291		0.00202
2019	40.00	12.43	0.16383	_	0.00202
2020	40.81	12.96	0.16480	-	0.00210
2021	42.49	13.22	0.16793	_	0.00210
2023	43.35	13.49	0.17112	-	0.00219
2024	44.23	13.76	0.17429	-	0.00223
2025	45.13	14.04	0.17753	-	0.00228
2026	46.04	14.33	0.18101	-	0.00232
2027	46.98	14.62	0.18415	-	0.00237
2028	47.93	14.92	0.18719	-	0.00242
2029	48.91	15.22	0.19024	-	0.00247
2030	49.90	15.53	0.19331	-	0.00252
2031	50.91	15.84	0.19630	-	0.00257
2032	51.95	16.17	0.19919	-	0.00262
2033	53.00	16.49	0.20210	-	0.00267
2034	54.08	16.83	0.20493	-	0.00273
2035	55.17	17.17	0.20768	-	0.00278
2036	56.29	17.52	0.21035	-	0.00284
2037	57.44	17.87	0.21292	-	0.00290
2038	58.60	18.24	0.21541	-	0.00296
2039	59.79	18.61	0.21774	-	0.00302
2040	61.01	18.99	0.21966	-	0.00308
2041	62.25	19.37	0.22143	-	0.00314

#### Notes:

(1) All values listed in **bold** are charges taken from the Bidder's proposal.

(2) All non-bold values reflect ICF escalation based on the Bidder's instructions, including:

- Capacity Charge of Cl\$37.66 per kW-month (Net) escalated, beginning in 2017, by Cl CPI which is projected by ICF to increase annually by 2.03%;
- Fixed O&M Charge of Cl\$11.72 per kW-month (Net) escalated, beginning in 2017, by Cl CPI which is projected by ICF to increase annually by 2.03%;
- LBG provided a total fuel cost of CI\$ 0.1401 per kWh, of which the base fuel component was CI\$ 0.0730 per kWh. To estimate forward base fuel costs, ICF adjusted the heat content used for propane fuel from 115,892 Btu per Imperial Gallon to 100,280 BTU per Imperial Gallon (LHV) to determine the base fuel component. Future years were escalated to reflect an ICF forecast for the annual spot price of Non-LST Mont Belvieu, TX Propane;
- The Bidder's original Fuel Charge "other" component (Net), including transportation, suppliers' margins and Government duties, was CI \$0.0671 per kWh. ICF estimated forward "other" fuel charges based on the Home Gas pricing info provided by LBG through a data response for the base fuel pricing. This component of the Fuel Charge was not adjusted any further except for a reduction in fuel duty, as announced by the government, from 22% to 20% beginning in 2015;
- Variable O&M Charge (Net)is escalated by CI CPI, beginning in 2017, and is projected by ICF to increase annually by 2.03%;
- (3) Anticipating Lubricant Charges to be insignificant over the life of the project, the Bidder proposed not to pass-through a Lubricant Charge to electricity consumers.
- (4) The Bidder's Capacity Charges are not subject to FX risk.
- (5) To calculate the levelised cost per kWh ICF did the following:
  - -Calculated the per kWh cost of Fixed charges based on the expected annual generation of the plant in accordance with the formula set out in the RFP and the CON using the plant's net capacity
  - -Costs in 000\$ for each component of cost for each period in the 25 year PPA were discounted to a present value using a 10% discount factor XNPV(Discount rate, periodic series values)
  - -The Net present Value of the periodic costs computed in step 2 above were then levelised assuming periodic payment consistent with the expected Net Generation over the horizon to determine levelized per kWh rate.

_	Capacity Charge (Cl\$/kW-Month)	Fixed O&M Charge (CI\$/kW-Month)	Fuel Charge (Cl\$/kWh)	Lubricant Charge (Cl\$/kWh)	Variable O&M Charge (Cl\$/kWh)
2014			0.16295		
2015					
2016	29.57	11.12	0.16210	0.00063	0.00493
2017	29.57	11.35	0.16248	0.00069	0.00500
2018	29.57	11.58	0.16282	0.00076	0.00508
2019	29.57	11.82	0.16334	0.00084	0.00515
2020	29.57	12.06	0.16428	0.00092	0.00523
2021	29.57	12.30	0.16528	0.00101	0.00531
2022	29.57	12.55	0.16850	0.00111	0.00539
2023	29.57	12.80	0.17178	0.00122	0.00547
2024	29.57	13.06	0.17505	0.00134	0.00555
2025	29.57	13.33	0.17838	0.00147	0.00563
2026	29.57	13.60	0.18196	0.00162	0.00572
2027	29.57	13.88	0.18519	0.00178	0.00580
2028	29.57	14.16	0.18831	0.00196	0.00589
2029	29.57	14.45	0.19146	0.00215	0.00598
2030	29.57	14.74	0.19461	0.00236	0.00607
2031	29.57	15.04	0.19769	0.00260	0.00616
2032	29.57	15.34	0.20067	0.00285	0.00625
2033	29.57	15.66	0.20366	0.00314	0.00634
2034	29.57	15.97	0.20657	0.00345	0.00644
2035	29.57	16.30	0.20939	0.00379	0.00653
2036	29.57	16.63	0.21214	0.00416	0.00663
2037	29.57	16.97	0.21480	0.00457	0.00673
2038	29.57	17.31	0.21736	0.00503	0.00683
2039	29.57	17.66	0.21975	0.00552	0.00693
2040	29.57	18.02	0.22173	0.00607	0.00704
2041	29.57	18.39	0.22354	0.00667	0.00714

#### **TABLE 3: Summary of Charges for DERE Proposal 1**

#### Notes:

(1) All values listed in **bold** are charges taken from the Bidder's proposal.

(2) All non-bold values reflect ICF escalation based on the Bidder's instructions, including:

- The Fixed O&M Charge (Gross) of CI\$11.12 per kWh escalates with CI CPI, beginning in 2017, and is projected at 2.03% per annum by ICF;
- The Bidder's Fuel Charge base component (Net) of CI\$ 0.08659 per kWh was adjusted by ICF to CI\$0.08515 in 2014 based on a lower heating value of 100,280 BTU per Imperial Gallon and was escalated based on an ICF projection for changes in the annual spot price for Non-LST Mont Belvieu, TX Propane;
- The Bidder's Fuel Charge "other" component (Net) of CI\$0.07636 per kWh, which includes transportation, suppliers' margins and Government duties, was adjusted slightly from the base component adjustment. ICF did not adjust this component of the charge any further except for a reduction in fuel duty, as announcedby the Government, from 22% to 20% beginning in 2015;
- The Bidder's Lubricant Charge (Net) of CI\$0.00063 per kWh was escalated, beginning in 2017, as per the annual percentage change in the Producer Price Index Commodity Series WPU057604 which ICF projected at 9.90% annually;
- The Variable O&M Charge (Net) of CI\$0.00493 was escalated, beginning in 2017, by 60% of the annual change in the European Producer Price Index and 40% x of the annual change in the CI CPI. ICF Projected EPPI at 1.14% and CI CPI at 2.03%;

(3) The Bidder's Capacity Charge (Gross) would have been subject to FX risk at the Notice to Proceed date.

- (4) To calculate the levelised cost per kWh ICF did the following:
  - -Calculated the per kWh cost of Fixed charges based on the expected annual generation of the plant in accordance with the formula set out in the RFP and the CON using the plant's net capacity
  - -Costs in 000\$ for each component of cost for each period in the 25 year PPA were discounted to a present value using a 10% discount factor XNPV(Discount rate, periodic series values)
  - -The Net present Value of the periodic costs computed in step 2 above were then levelised assuming periodic payment consistent with the expected Net Generation over the horizon to determine levelized per kWh rate.

2014	Capacity Charge (Cl\$/kW-Month)	Fixed O&M Charge (Cl\$/kW-Month)	Fuel Charge (CI\$/kWh) <b>0.15116</b>	Lubricant Charge (CI\$/kWh)	Variable O&M Charge (Cl\$/kWh)
2014			0.15110		
2015	37.82	7.24	0.15745	0.00001	0.00162
2010	37.82	7.39	0.15782	0.00001	0.00165
2018	37.82	7.54	0.15814	0.00001	0.00169
2019	37.82	7.69	0.15865	0.00001	0.00172
2020	37.82	7.85	0.15956	0.00001	0.00176
2021	37.82	8.01	0.16053	0.00002	0.00179
2022	37.82	8.17	0.16366	0.00002	0.00183
2023	37.82	8.34	0.16685	0.00002	0.00186
2024	37.82	8.51	0.17002	0.00002	0.00190
2025	37.82	8.68	0.17325	0.00002	0.00194
2026	37.82	8.85	0.17673	0.00003	0.00198
2027	37.82	9.03	0.17987	0.00003	0.00202
2028	37.82	9.22	0.18290	0.00003	0.00206
2029	37.82	9.40	0.18596	0.00003	0.00210
2030	37.82	9.60	0.18902	0.00004	0.00215
2031	37.82	9.79	0.19201	0.00004	0.00219
2032	37.82	9.99	0.19490	0.00005	0.00223
2033	37.82	10.19	0.19781	0.00005	0.00228
2034	37.82	10.40	0.20063	0.00005	0.00233
2035	37.82	10.61	0.20338	0.00006	0.00237
2036	37.82	10.83	0.20605	0.00007	0.00242
2037	37.82	11.05	0.20863	0.00007	0.00247
2038	37.82	11.27	0.21112	0.00008	0.00252
2039	37.82	11.50	0.21344	0.00009	0.00257
2040	37.82	11.73	0.21536	0.00010	0.00262
2041	37.82	11.97	0.21713	0.00011	0.00268

#### **TABLE 4: Summary of Charges for DERE Proposal 2**

#### Notes:

(1) All values listed in **bold** are charges taken from the Bidder's proposal.

(2) All non-bold values reflect ICF escalation based on the Bidder's instructions, including:

- The Fixed O&M Charge (Gross) of CI\$7.24 per kWh escalates with CI CPI, beginning in 2017, and projected to be 2.03% per annum by ICF;
- The Bidder's original Fuel Charge base component (Net) of CI\$0.08032 per kWh (based on a heat rate at a 100% MCR) was adjusted to CI\$0.08271 per kWh based on a heat rate at 80% MCR (which is in line with the CON) and on an LHV of 100,280 BTU per Imperial Gallon. The base charge was escalated according to an ICF projection for changes in the annual spot price for Non-LST Mont Belvieu, TX Propane;
- The Bidder's Fuel Charge "other" component (Net) of CI\$0.07636 per kWh, which includes transportation, suppliers'
  margins and Government duties, was adjusted slightly from the base component, but was not escalated
  by ICF except for a reduction in fuel duty, as announced by the Government, from 22% to 20% beginning in 2015;
- The Bidder's Lubricant Charge (Net) was escalated, beginning in 2017, as per the annual percentage change in the Producer Price Index Commodity Series WPU057604 which ICF projected at 9.90% annually;
- Variable O&M (Net) was escalated, beginning in 2017, by an annual change in the CI CPI which ICF projected as 2.03%;
- (3) The Bidder's Capacity Charge (Gross) was not subject to FX risk.
- (4) To calculate the levelised cost per kWh ICF did the following:
  - -Calculated the per kWh cost of Fixed charges based on the expected annual generation of the plant in accordance with the formula set out in the RFP and the CON using the plant's net capacity
  - -Costs in 000\$ for each component of cost for each period in the 25 year PPA were discounted to a present value using a 10% discount factor XNPV(Discount rate, periodic series values)
  - -The Net present Value of the periodic costs computed in step 2 above were then levelised assuming periodic payment consistent with the expected Net Generation over the horizon to determine levelized per kWh rate.