U.S. Department of Energy
Energy Efficiency and Renewable Energy

Workshop on Distributed Energy Resources
and Combined Heat and Power
in Regulated and Competitive Markets

Evaluation of Alternative Commercial Approaches to DG/CHP in Hawaii

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August 28, 2004

Agenda

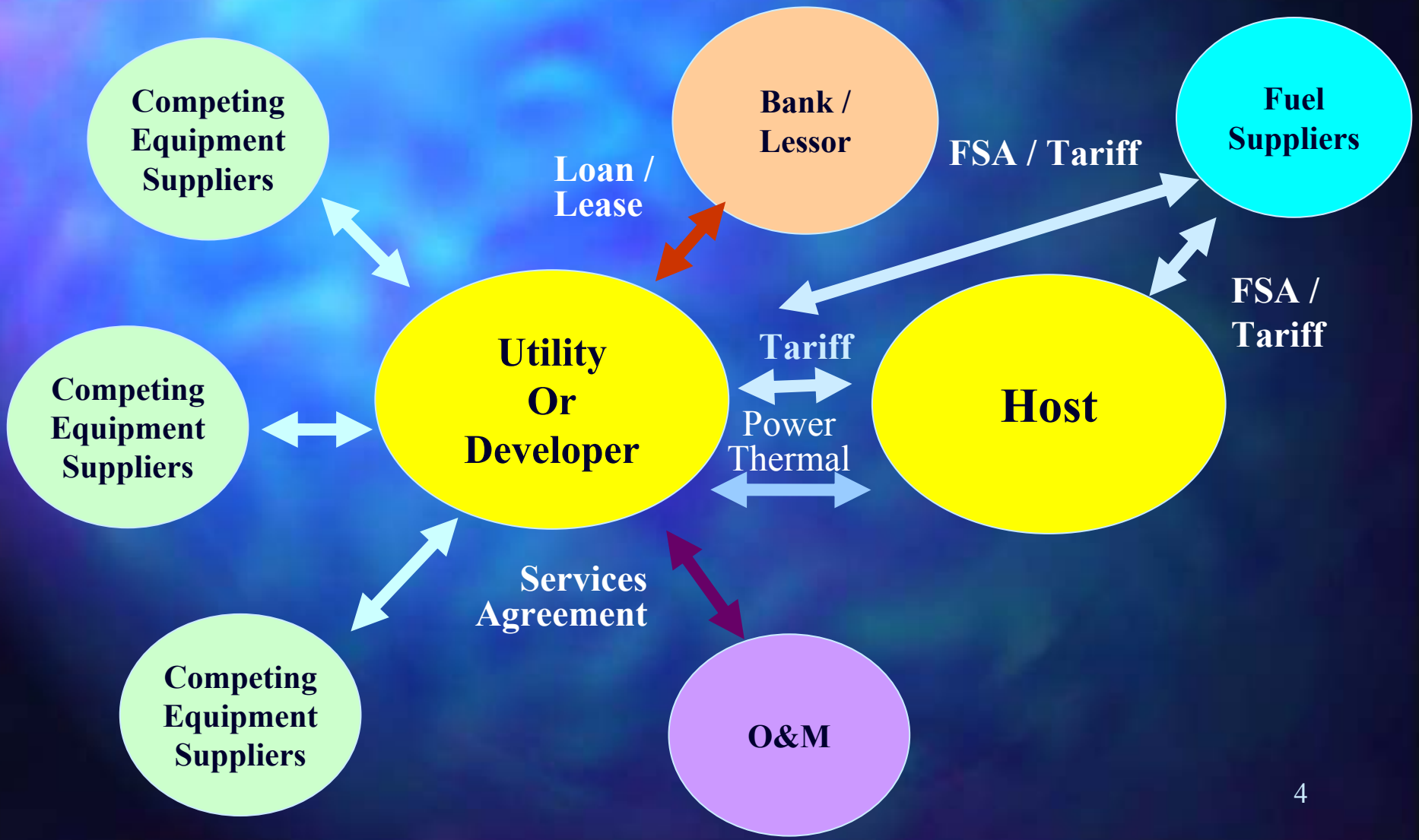
- Background on CEI
  - The *EconExpert*™ Software Tools Applied in the Study
- The Analysis
  - Study Objectives
  - HI Tariffs Overview
  - Assumptions
  - Results
    - Economics from Perspective of Host and Owner
    - CHP is Complex – Every Site and Application is Unique
- Panel for Questions and Discussion

Competitive Energy Insight, Inc.
Power Industry Professionals

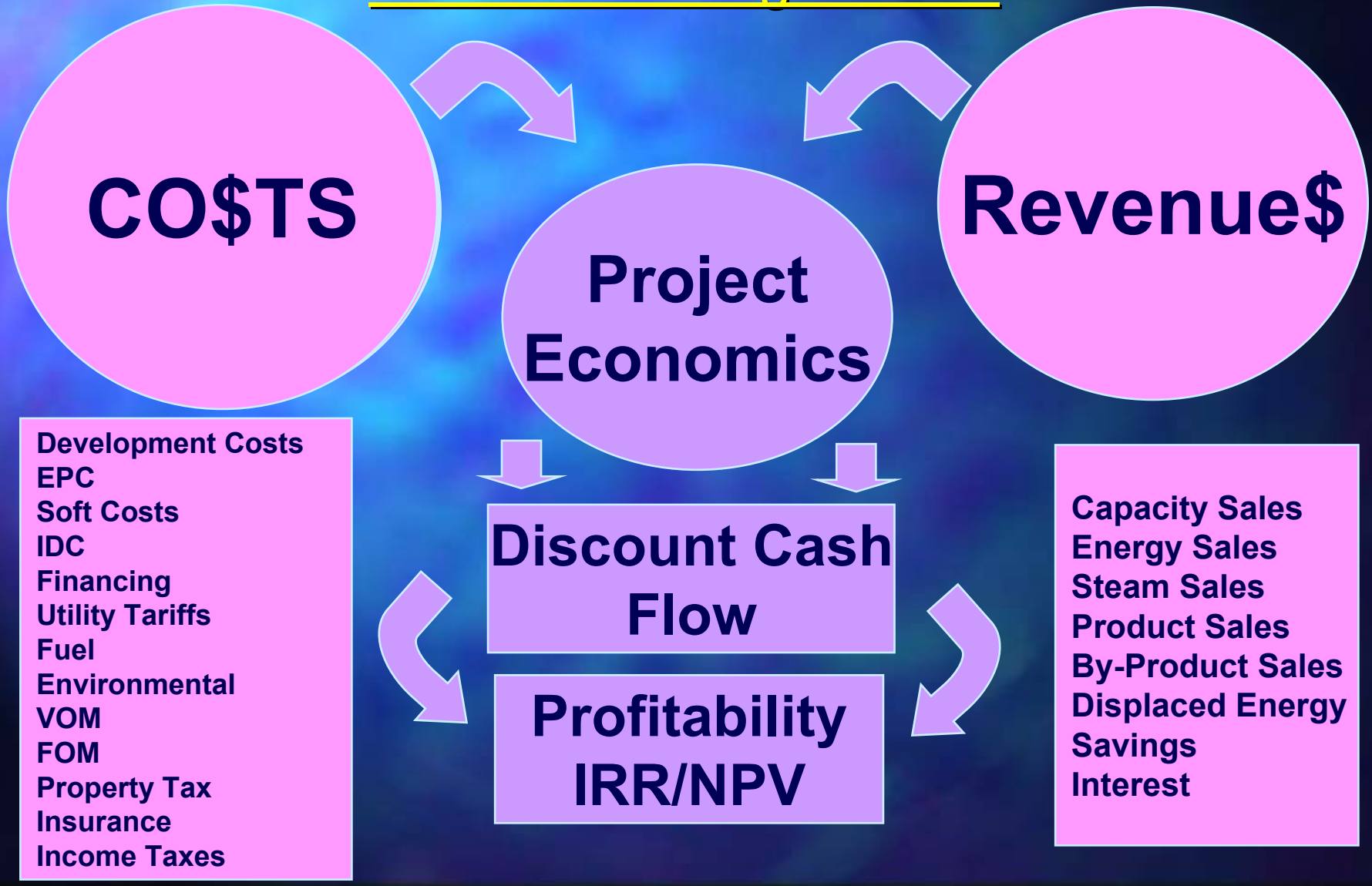
- Founded in 1997
- Software Licensing and Consulting Services
  - Experienced Power Project Developers
  - Microsoft Excel® / Visual Basic Specialists
- Developers of the ***EconExpert®*** Software Suite
  - ***EconExpert-IAT*** (Interval Analysis Tool)
  - ***EconExpert-DG*** (Distributed Generation / CHP)
  - ***EconExpert-LP*** (Renewables and Central Power)
    - Documented / Menu Driven
    - Data Entry Templates and Wizards
    - Fully Customizable
    - Automated Sensitivities

www.EconExpert.NET

Our Analysis Philosophy
The Economics of Stakeholders in Energy Projects are Linked



Understanding Those Relationships Requires Analysis and Understanding of All Influencing Factors



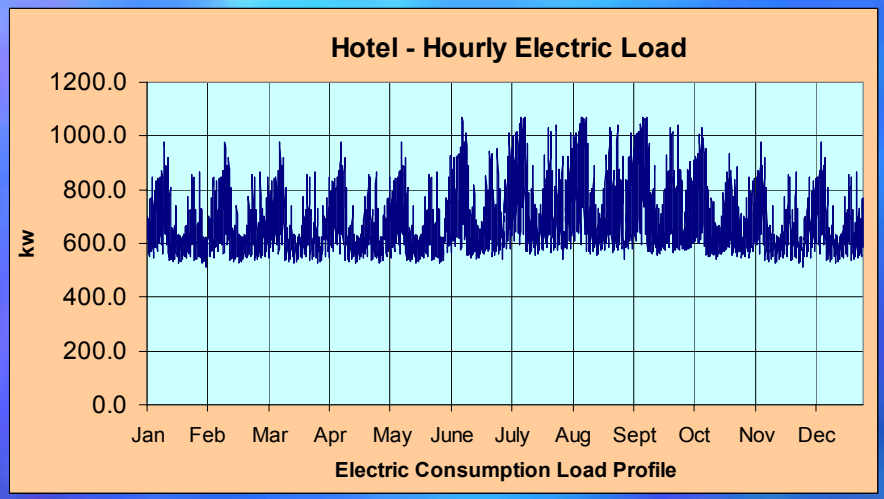
EconExpert-IAT

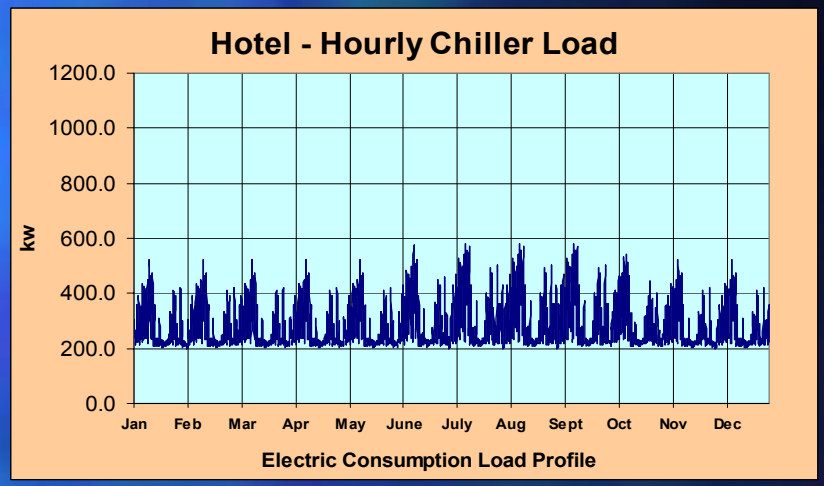
Interval Make / Buy Analysis

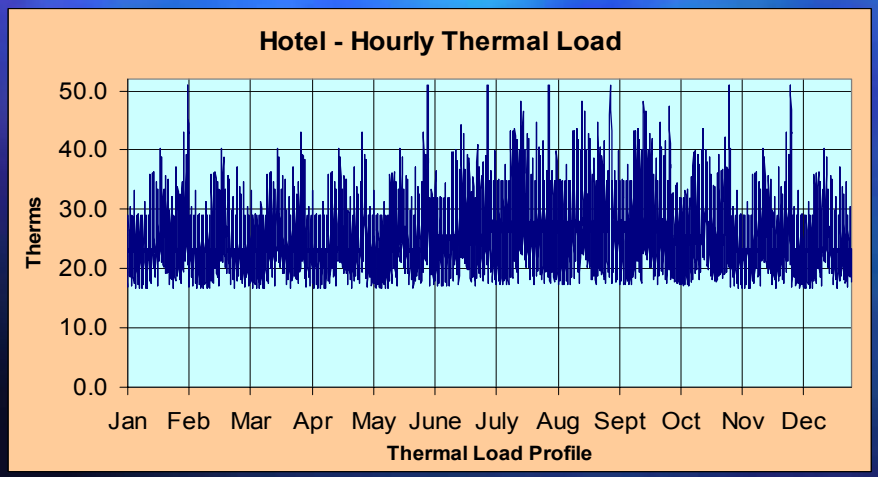
- **Hourly Operating Analysis**
  - Dynamics of DG/CHP Operations
  - Optimize Equipment Selection and Sizing
- **Data Sources**
  - Electric/Thermal meter & sub-metering data
    - Or simulated profiles
  - Fuel and Electric Tariffs
  - Equipment Technical & Performance Data
- **Consolidated Reports & Graphics**
  - Operating Profiles
  - Hourly Performance
  - Monthly Reports
    - Thermal and Electric Bills Before & After DG

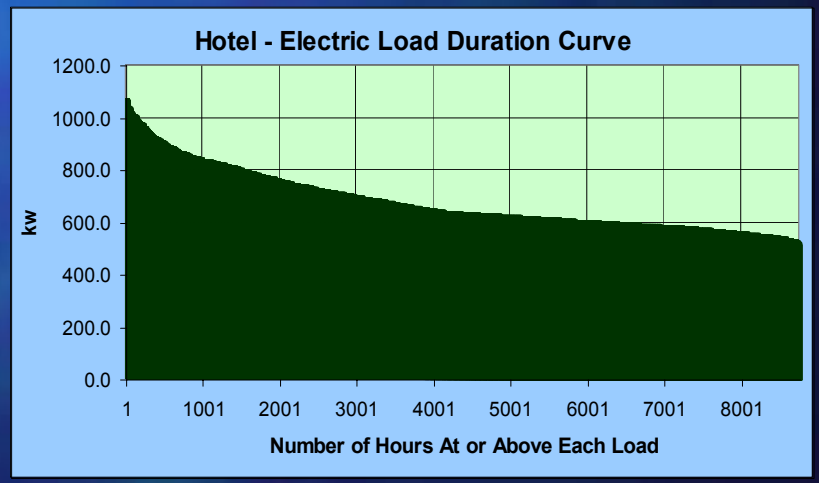
EconExpert
"Universal" Financial Models
Model the Future
BY: GEI

Electric and Thermal Load and Load Duration Curves









EconExpert-IAT

Simple Tariff Templates

Monthly Fixed Charges			
Category	January	March	April
Customer Charge	$ 319	$ 319	$ 319

Energy Rate kwh/kw of Billing Demand	to kwh/kw	Tiered Energy Charges c/kwh
-	200	10.22
200	400	9.43
400	100,000,000	9.12

Demand Rate / kw of Billing Demand	to ___ kw	Tiered Demand Charges $/kw mo
-	500	$9.96
500	1,500	$9.46
1,500	100,000,000	$8.46

Similar Templates Apply to Time-of-Use or Standard Tiered Tariffs

EconExpert-DG

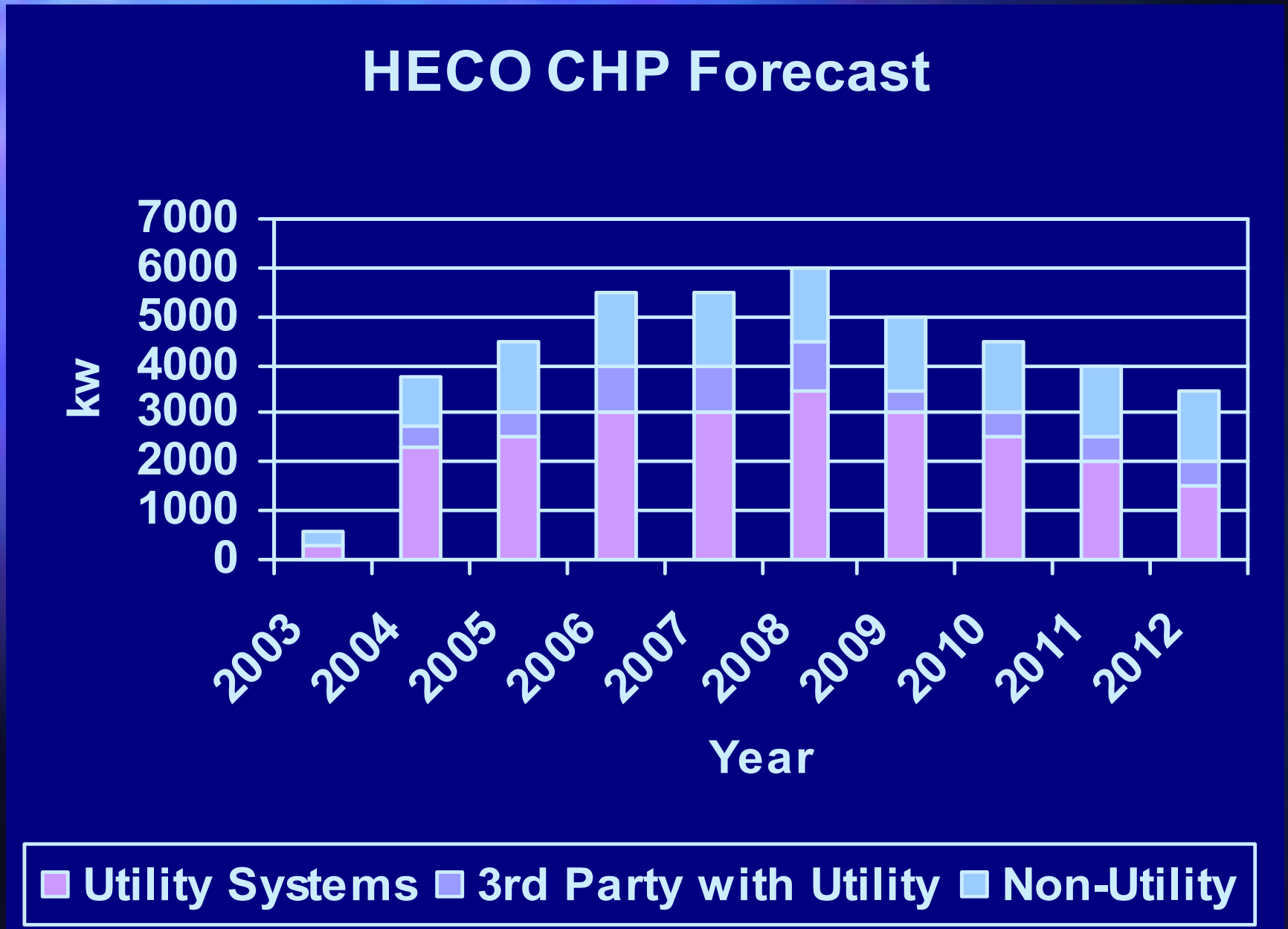
Economic / Financial Analysis

- **Full Before and After-Tax Discount Cash Flow**
- **Critical Considerations for Project Analysis**
  - **Host's Appetite for Electric Energy and Waste Heat**
  - **Regulatory Requirements and Tariffs**
  - **Costs of Installation and Operation**
  - **Performance Characteristics of the Technology**
  - **Fuel Costs and Pricing Risk**
  - **Income Taxes and Efficient Utilization of Tax Benefits**
  - **Sources for Grant Funding**
  - **Financing Alternatives including Operating Leases**
- **Fully Integrated with *EconExpert-IAT***

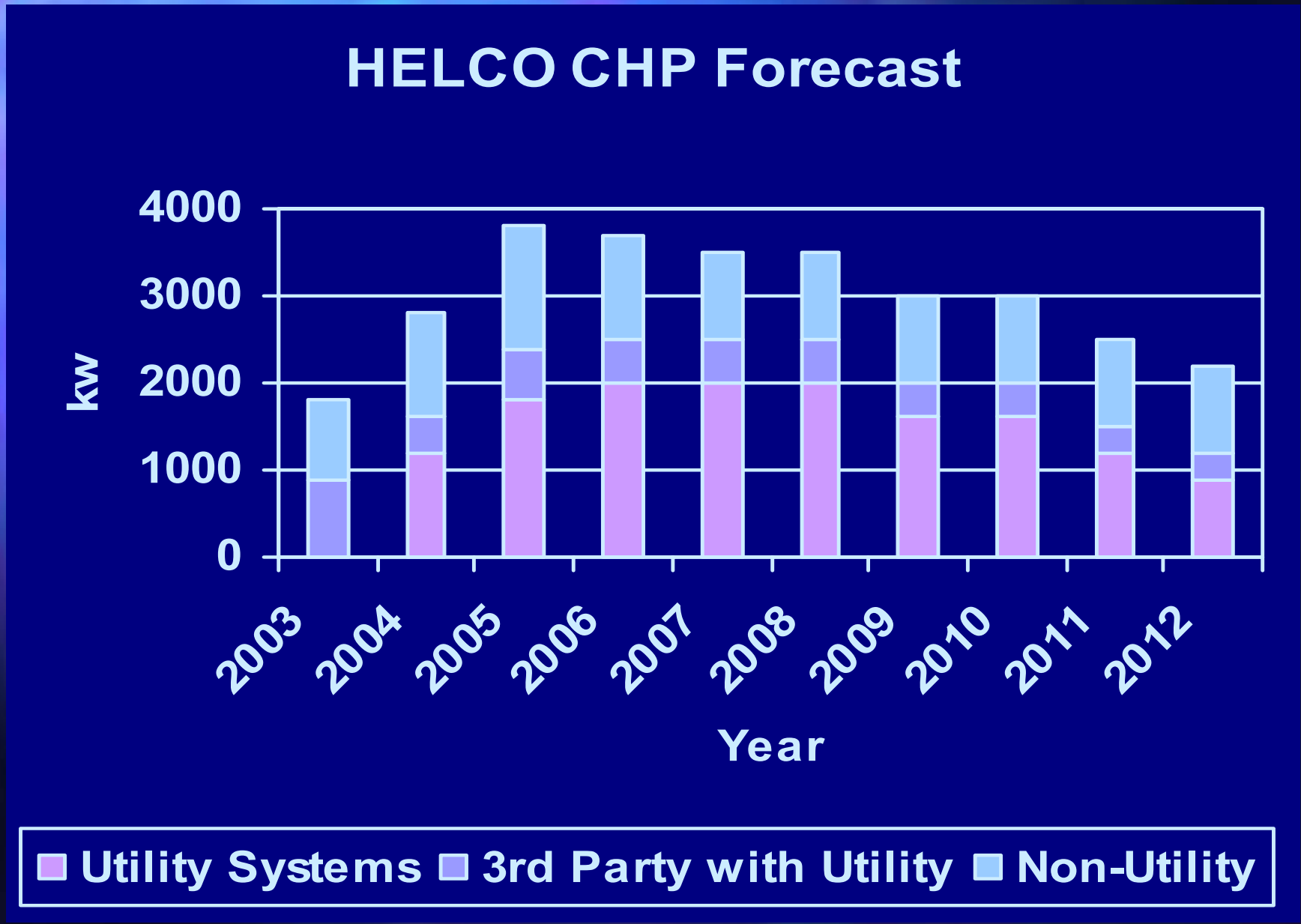
Study Objectives

- **Consultations with Key Stakeholders**
  - HECO – Regulated Tariffs and Docket
  - KIUC – DG/CHP Perspective of Electric Cooperative
  - The Gas Company – Independent Ownership
  - Property Owners – Needs and Perspectives
  - Equipment Suppliers – Technology and Solutions
- **Evaluation of Three Typical Applications**
  - From the perspective of various stakeholders
  - Comparison of Economic and Risk Factors
  - Regulated and Unregulated Economic Scenarios

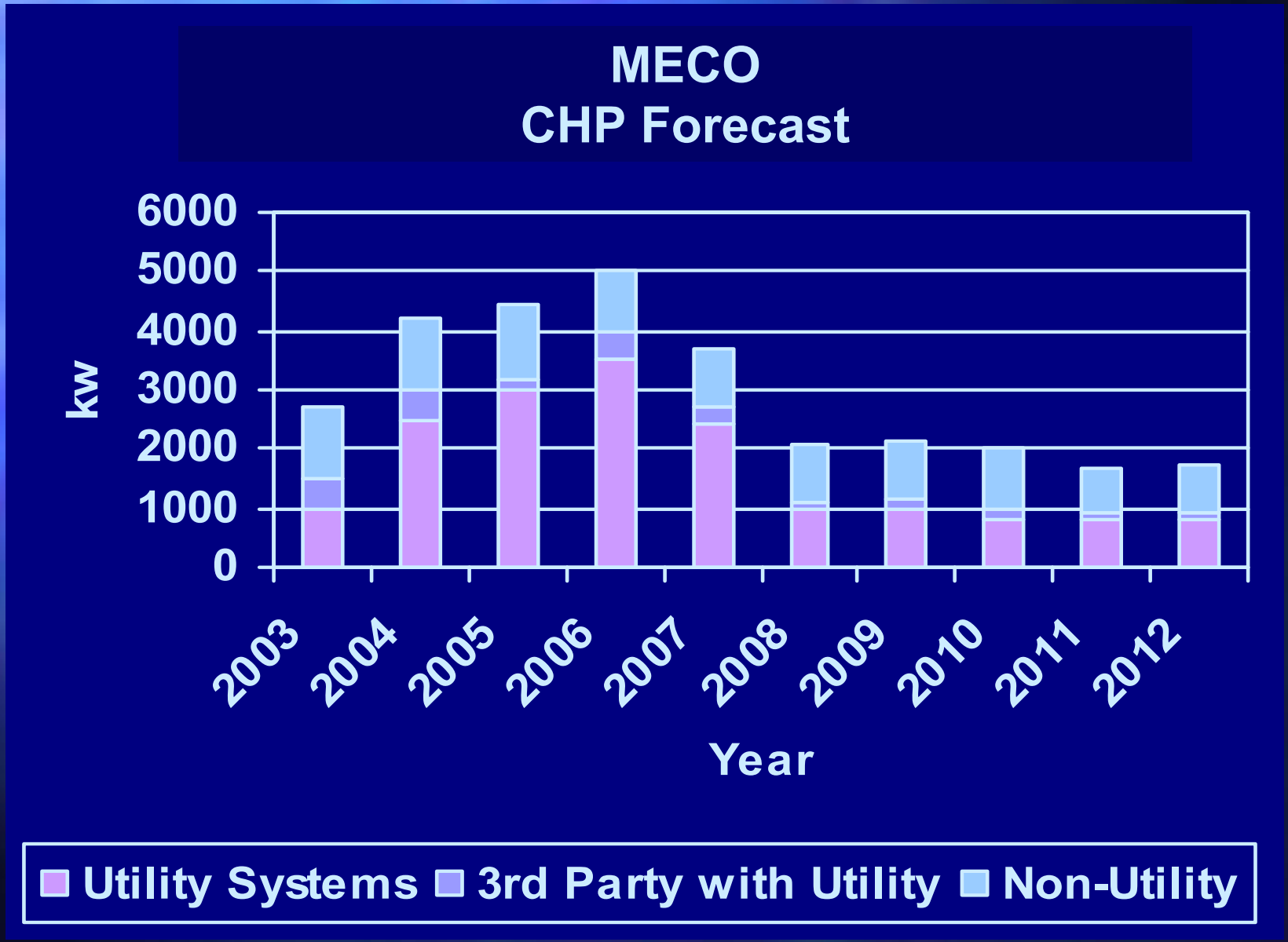
HECO Companies CHP Forecast



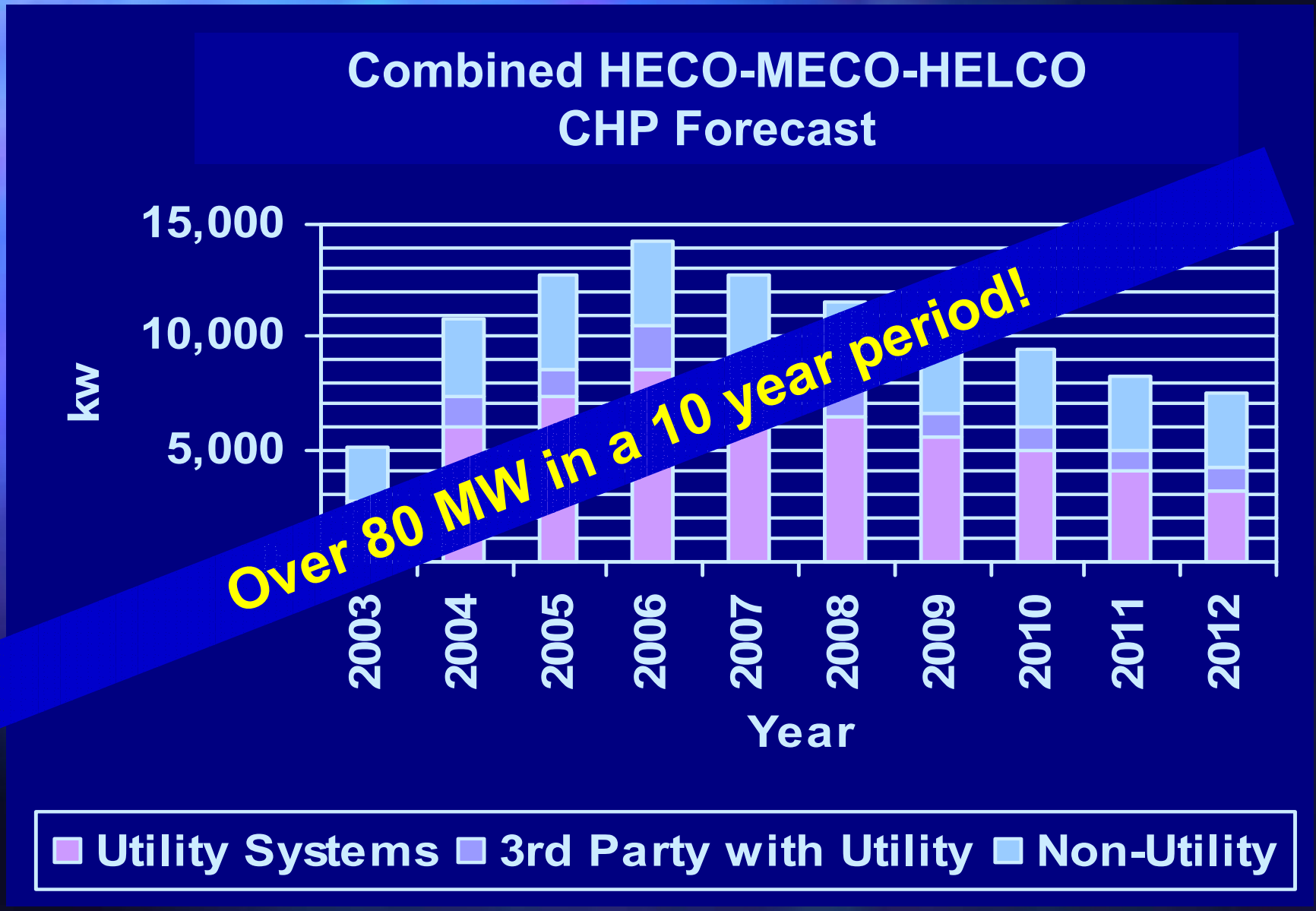
HECO Companies CHP Forecast



HECO Companies CHP Forecast



HECO Companies CHP Forecast



Stakeholder Feedback

- Rate and Tariff Structures
- Comments on Thermal and Electric Load Profiles
- Preferred Applications for DG/CHP
- Business Models

HECO and KIUC Tariffs

(Effective 7/1/04)

Category	HECO Oahu, Schedule PS	KIUC Schedule P
Customer Charge, $/Mo	$319	$347
Demand Charge, $/kw / Mo	Maximum of Metered Demand or Prior 11 Month Peak	Maximum of Metered Demand or 75% of Prior 11 Month Peak
- First 500 kw	$ 9.96	
- 500 - 1500 kw	$ 9.46	
- Over 1500 kw	$ 8.46	
- Monthly Demand		$10.45
Energy Charge, cents/kwh		
- First 200 kwh / kw of demand	10.22 ¢	22.90 ¢
- 200 – 400 kwh / kw "	9.43 ¢	22.90 ¢
- Over 400 kwh / kw "	9.23 ¢	20.94 ¢
Standby Charges for Private Generation (12 mo), $/kw Mo	NO	$5.00* *Host or 3rd Party Owned. 75% of Standby Demand Ratchet if Miss 2/12 mos

HELCO and Maui Tariffs

(Effective 7/1/04)

Category	Maui, Schedule P	HELCO, Schedule PS
Customer Charge, $/Mo	$225	$375
Demand Charge, $/kw / Mo	Maximum of Metered Demand or Prior 11 Month Peak	Maximum of Metered Demand or Prior 11 Month Peak
- First 500 kw	$ 8.51	$ 11.25
- 500 - 1500 kw	$ 8.01	$ 10.75
- Over 1500 kw	$ 8.01	$ 10.75
Energy Charge, cents/kwh		
- First 200 kwh / kw of demand	18.57 ¢	18.78 ¢
- 200 – 400 kwh / kw "	17.03 ¢	16.60 ¢
- Over 400 kwh / kw "	15.31 ¢	15.60 ¢
Standby Charges for Private Generation (12 mo), $/kw Mo	NO	$11.40/kw mo* Host or 3rd Party Owned, Applies for life of asset.

Source: Rate Data Sheet Provided by DBEDT and discussions with HECO and KIUC

Stakeholder Perspectives

- **Utility Own & Operate**
  - Perspectives of HECO and Host
  - Proposed Terms of Docket
  - HECO responsible
- **Host Own & Operate**
  - Identifies All Potential Savings Available to Project
  - Host responsible for installation, fuel and operating risk
- **Private 3rd Party Own & Operate**
  - Perspectives of Third Party Owner and Host
  - Portions of savings shared with host
  - Private party takes installation and operating risks

Primary Study Assumptions (1 of 4)

Economic Assumptions

Inflation Rate	2.5%
Discount Rate	10.0%
Construction Term	5 Months
Start-of-Operations	1/1/06
Project Life	20 years
Capital Cost	$1750/kw
As Financed Installed Cost	$1860/kw
Annual Fixed Costs	$60/kw
State Income Tax Rate	6.4%
Federal Income Tax Rate	35.0%
Depreciation Term, MACRS	20 Years
Percent Financed	70%
Interest Rate	8.0%
Loan Term	10 Years

Primary Study Assumptions (2 of 4)

Engine Performance Assumptions

	Caterpillar 3456DITA	Blue Point - Lean One (Lower Emissions – Limited Sizes)
Base Fuel	Diesel	SNG or Propane
Capacity, kw	432	260 on Natural Gas Assumed 195 (30% Derate on Diesel, Propane or SNG)
Full Load Net Heat Rate, Btu/kwh Net HHV	10,489	11,740
Useful Thermal, % of Heat Input	41.2%	43.6%
Single Engine Min Load	50%	50%
Part Load Profiles	Provided by Supplier	Provided by Supplier

Important Note: Analysis of Caterpillar and Blue Point Engines is NOT intended as a competitive comparison of engine types but rather as an illustration of impacts of number and size of engines on economics.

Primary Study Assumptions (3 of 4)

Absorption Chiller Performance Assumptions

(Trane or Like)

Capacity, Tons	~50 – 300 Tons Matched to: Engine Thermal Output Site Electric Chiller and Refrigeration Demand
Thermal Inputs at full load	0.17 Therms/hr/Ton
Electric Chiller Offset	0.80 kw/Ton
	4.71 kwh/Therm of Waste Heat

Primary Study Assumptions (4 of 4)

- **Three "Proxy" Building Load Profiles**
  - Primen EnergyShape Database Adjusted based on Stakeholder Feedback

Building Type	Approx. Building Interior SqFt	Approx. Guest Rooms / Beds / Offices	Floors
Hotel	570,000	600	10
Hospital	300,000	600	10
Office Building	210,000	400	20

- **HECO, KIUC and Maui Projects**
- **Base Case Fuel Prices, $/Therm**

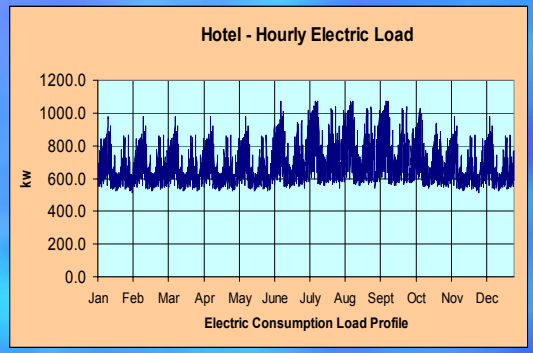
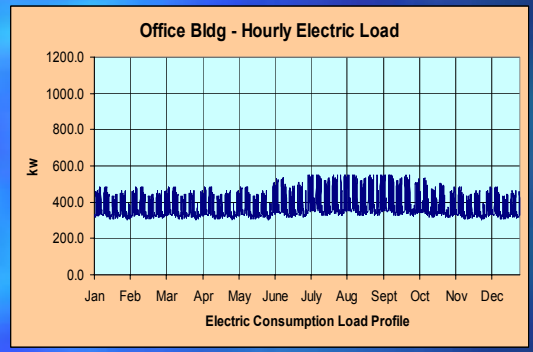
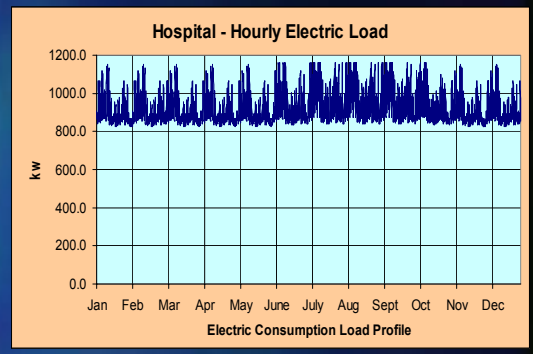
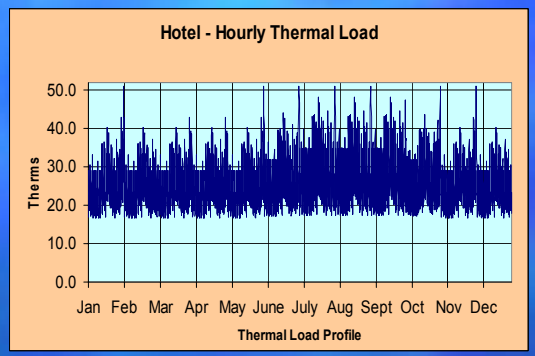
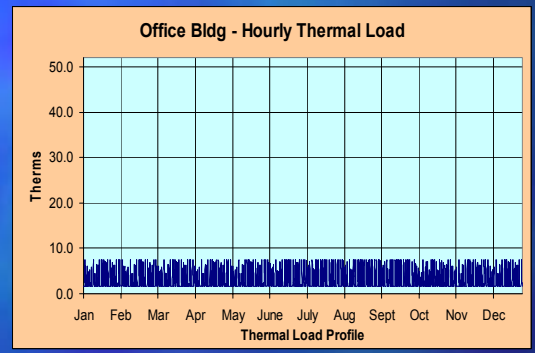
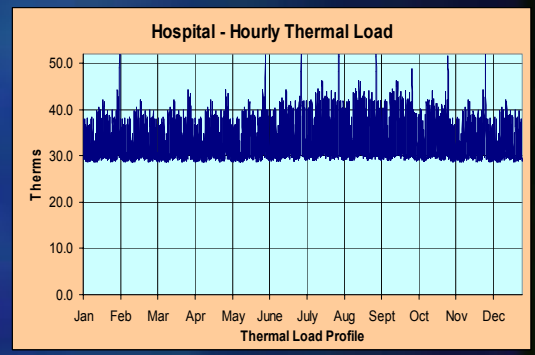
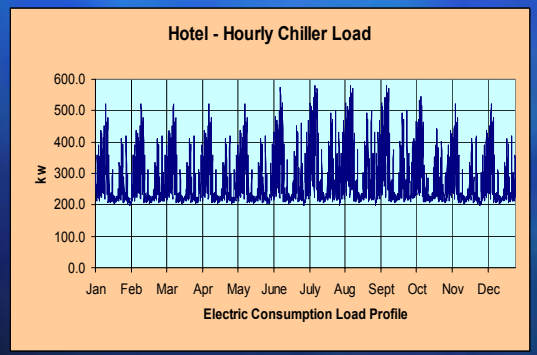
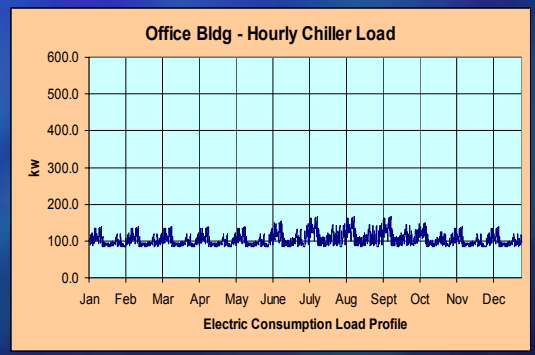
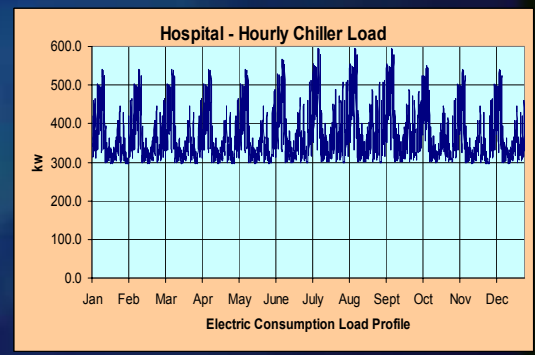
Fuel Type	Oahu	Kauai / Maui	Potential Engine Derating
Diesel	$0.90	$1.00	0%
SNG	$1.10	N/A	0% - ???
Propane	$1.10	$1.20	~30%

- **Variable Costs, 0.10cents/kwh**

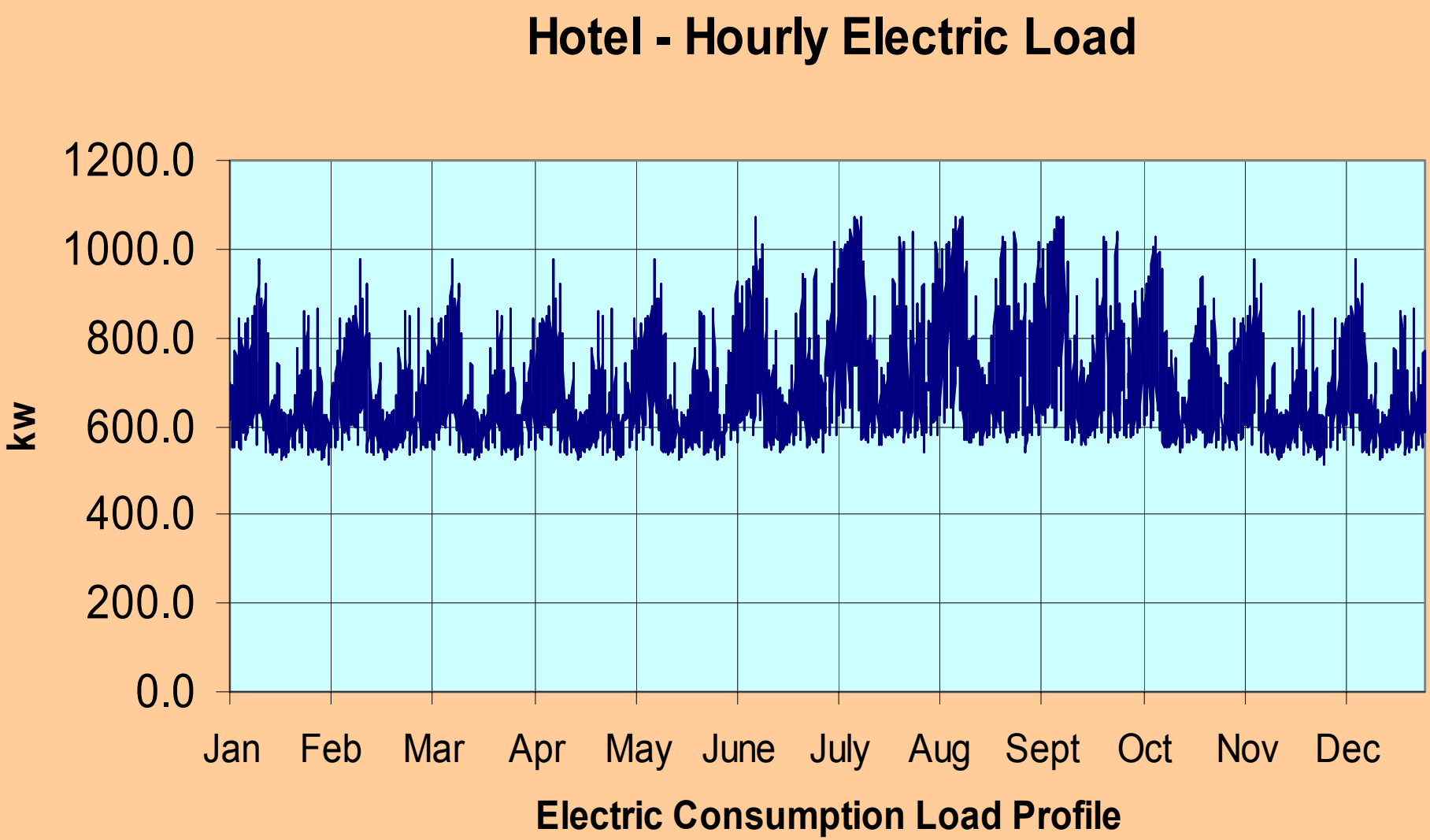
Sensitivity Analyses

- Fuel Types - Diesel, SNG, Propane
  - Fuel Price
- Equipment Configuration / Redundancy
  - # of Generators
  - # of Chillers
- System Reliability / Forced Outage Rate
  - First Year Savings versus Later Years

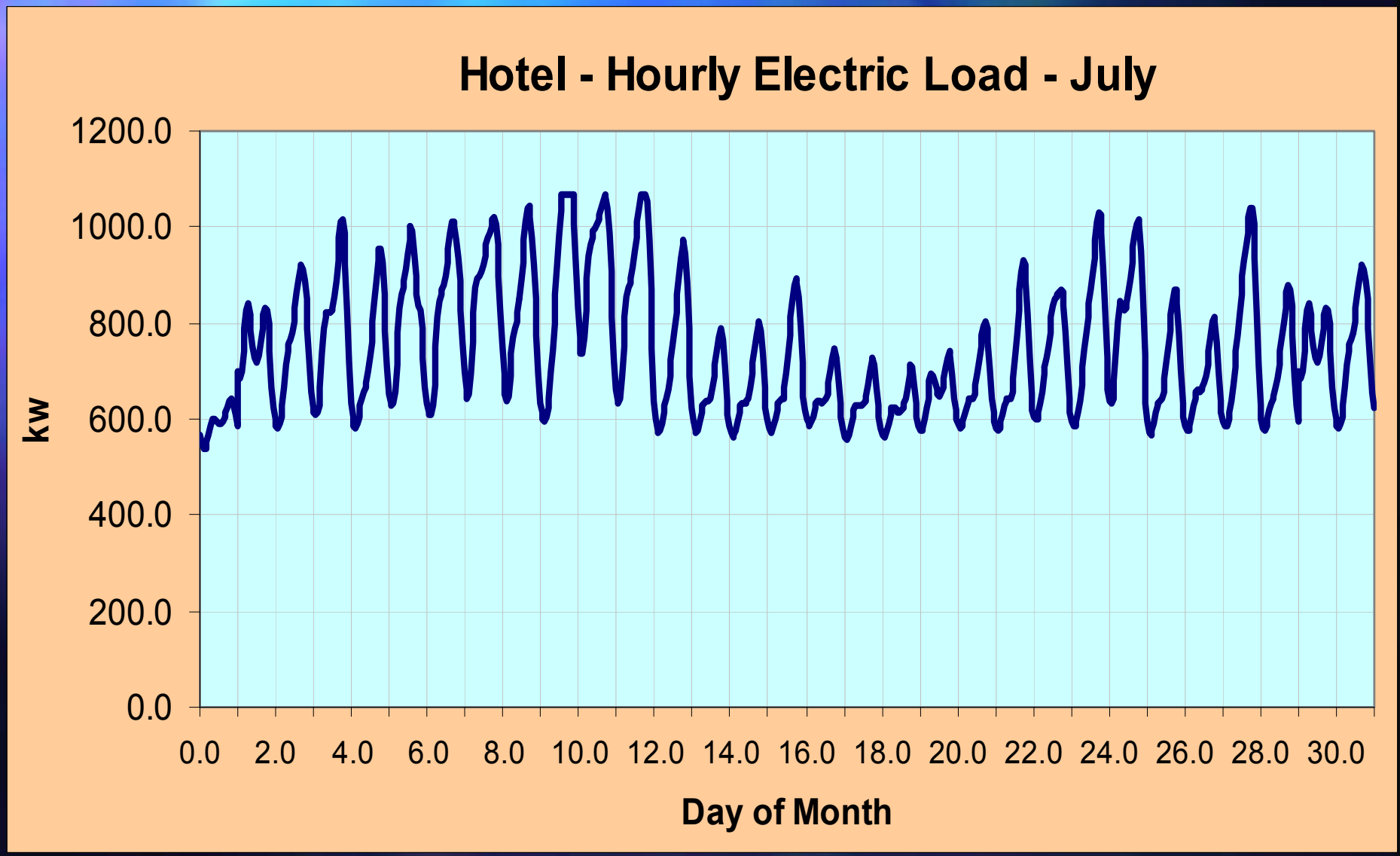
Proxy Building Load Profiles

	Hotel	Office Building	Hospital
Total Electric			
Displaceable Thermal			
Electric Chillers			

Hotel Proxy Electric Load Profile Annual



Hotel Proxy Electric Load Profile
1 Month



HECO Docket No. 03-0366
CHP Rates for Oahu Customers

- HECO Builds, Owns and Operates Facility
- Customers Charged Under Same Energy Rate Schedule
  - Demand Charges Unaffected
  - 1.0 cent/kwh Discount for Displaced Electric Energy
    - Subject to Minimum 85% Availability Rate
  - Thermal Sales at $0.40/Therm ±50%
    - Subject to project specific negotiations
    - Escalated at GDPIPD
  - Facilities Charges for Absorption Chillers
    - If owned by Utility
    - $560 - $3150 / Mo Depending on Chiller Size
    - Escalated 3%/yr
- Similar Approach for Other Islands in HECO Service Territory

HECO Docket
Hotel Case – CAT Engines

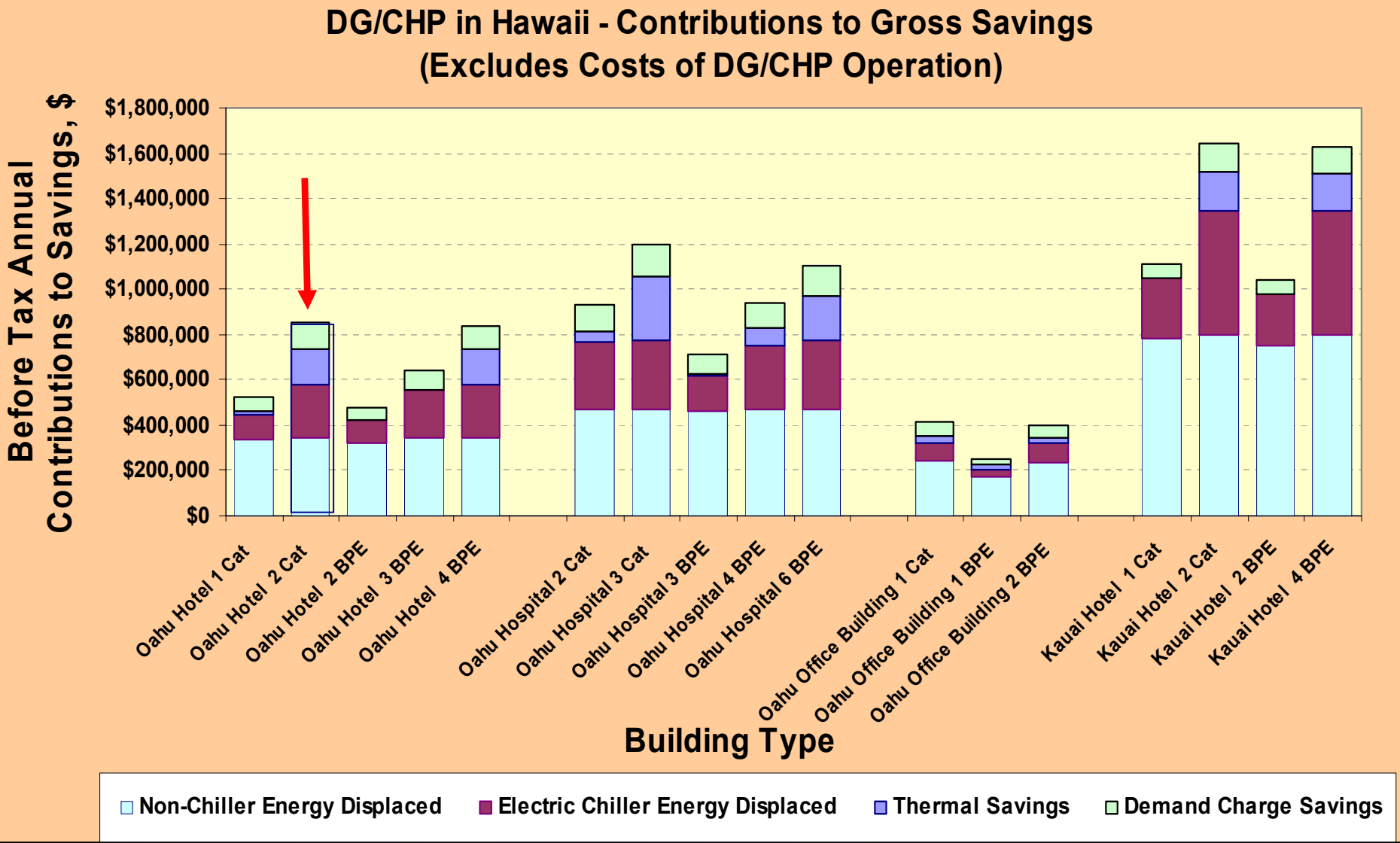
Case	Hotel	Hospital	Office Building
Number of Engines	2	3	1
Fuel	Diesel	Diesel	Diesel
Total Direct Generation, kw	865	1297	433
MM Kwh Displaced by Engine	4.93	6.68	2.79
Chiller Capacity, Tons	200	250	100
MM Kwh Displaced by Absorption Chiller	1.04	1.40	0.586
K Therms Thermal Energy Displaced	106	193	20

HECO Docket
Hotel Case – Estimated Savings to Host (~92.5% Capacity Factor)

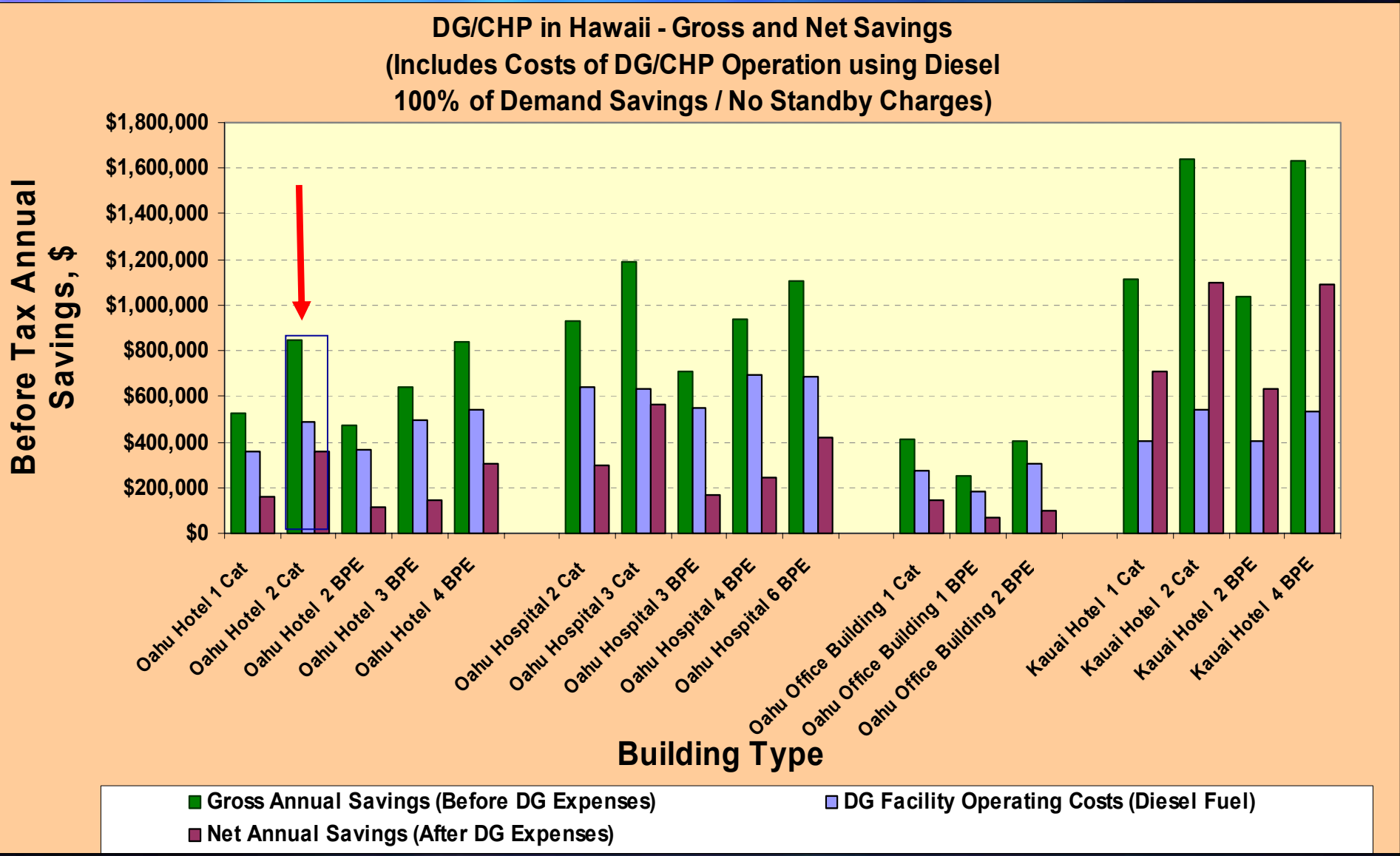
Case	Hotel	Hospital	Office Building
Annual Direct Generation Savings	$45,000	$61,000	$26,000
Annual Thermal Savings ($0.50/therm)	$50,000	$90,000	$ 9,500
Annual Savings from Absorption Chiller Offset	$9,500	$13,000	$ 5,500
Cost of Absorption Chillers	($16,800)	($16,800)	($11,400)
Savings with Chiller	$87,700	$147,200	$29,600
Savings without Chiller *	$95,000+	$151,000+	$35,500+

* + there may be some additional savings associated with additional waste heat use

Host Owned and Operated
Potential Gross Savings
(With 100% of Demand Charge Credits / Diesel)



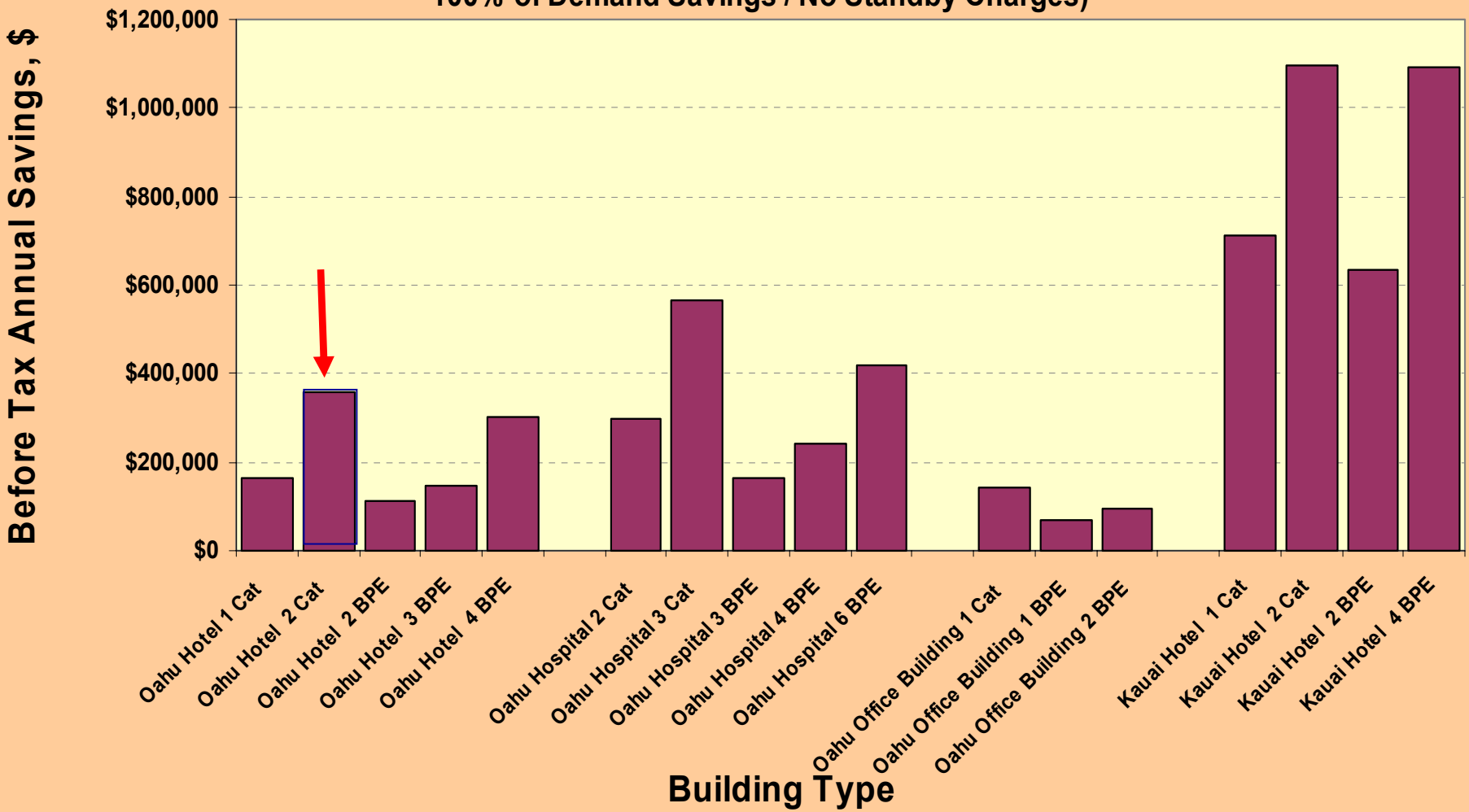
Host Owned and Operated
Net Annual Savings – Base Case
(100% of Demand Savings / No Standby Charges / Diesel)



Host Owned and Operated

Net Annual Savings – Base Case

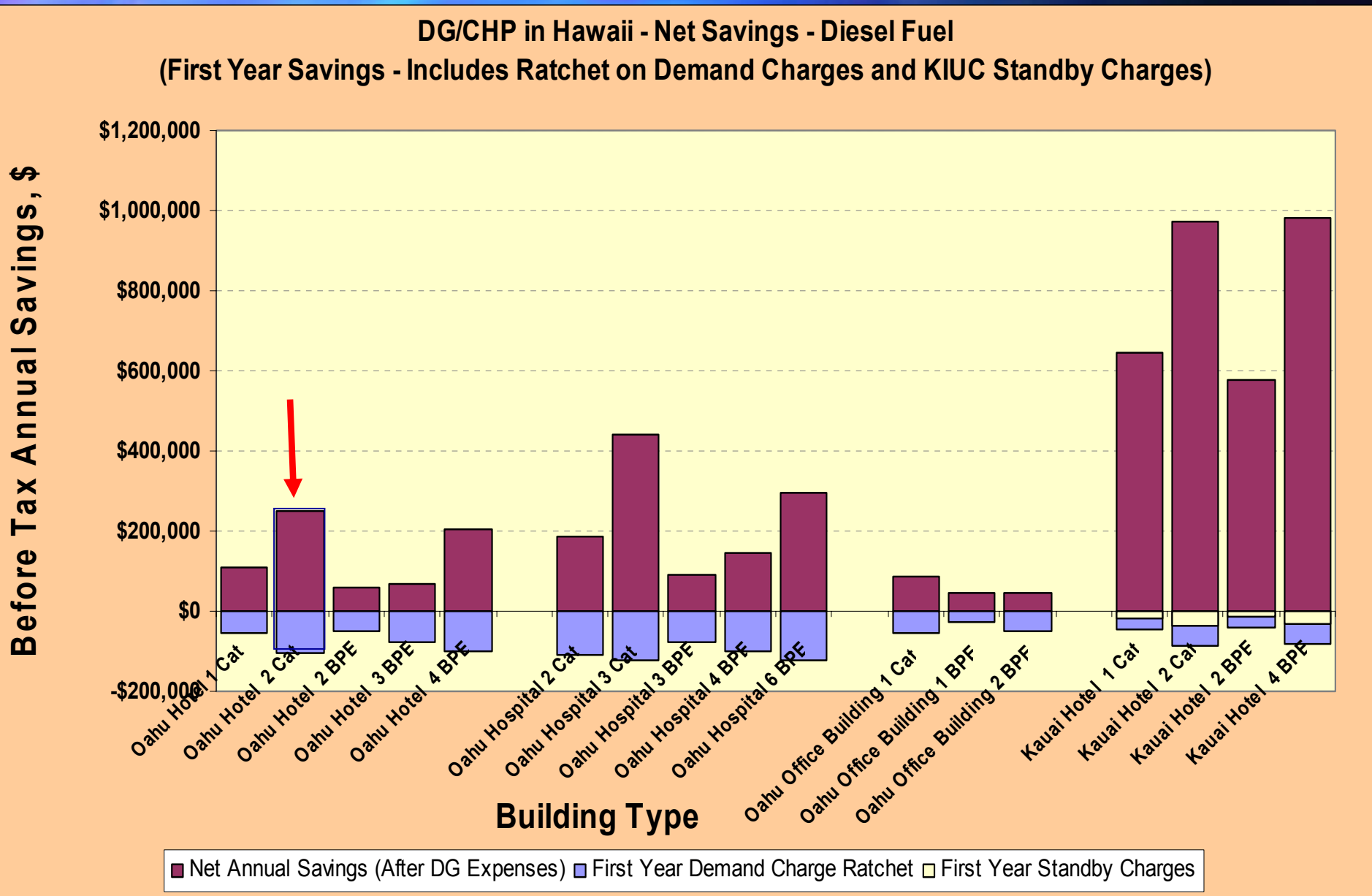
(100% of Demand Savings / No Standby Charges / Diesel)



Host Owned and Operated

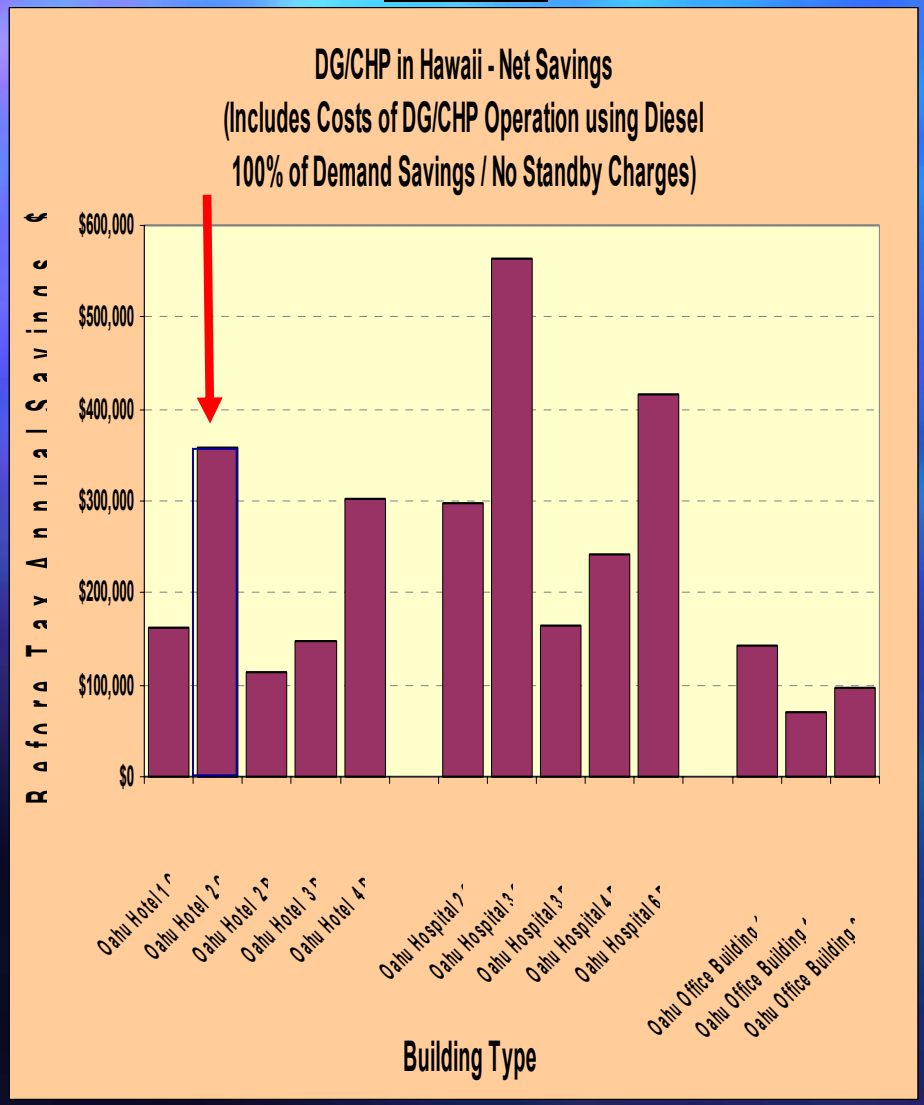
Net Annual Savings

(Reverse Demand Savings / Include Standby Charges / Diesel)

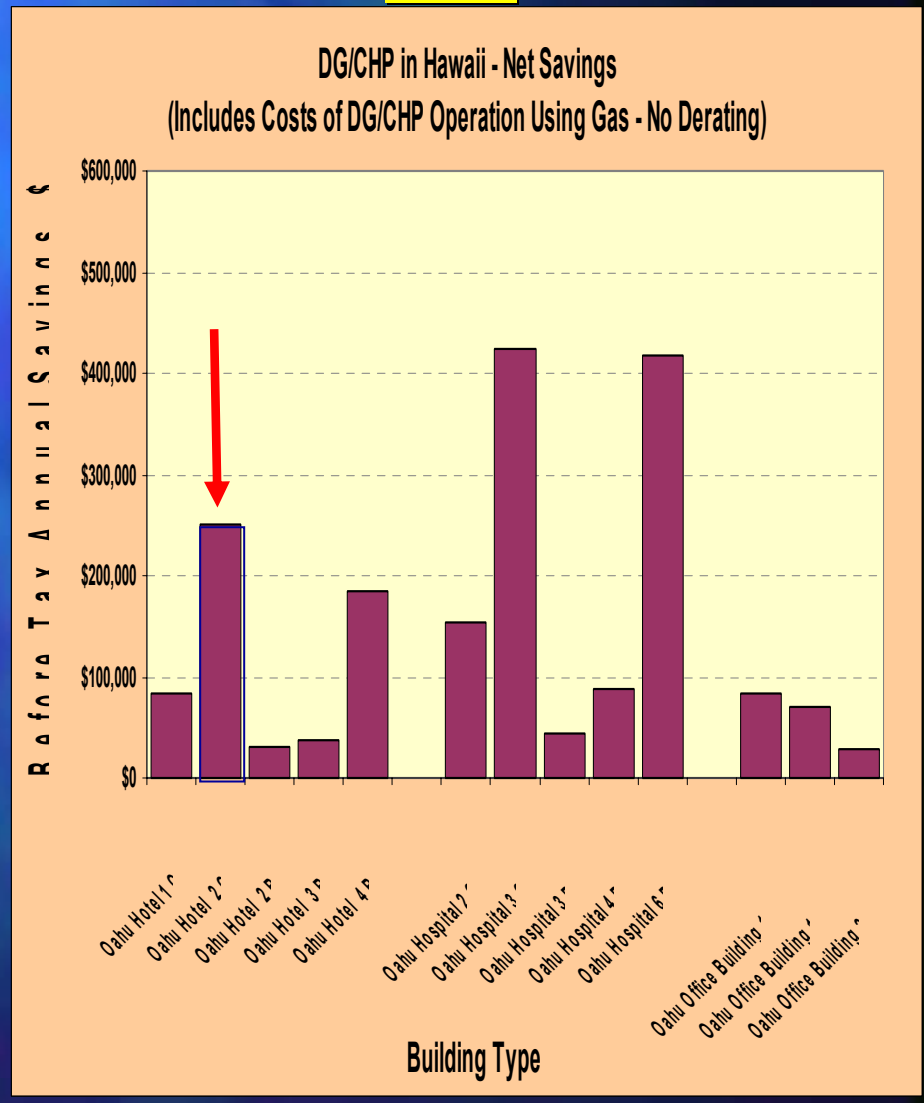


Oahu - Net Annual Savings – Base Case
(100% of Demand Savings / No Standby Charges)
SNG vs. Diesel (22% Higher Price / Same Performance)

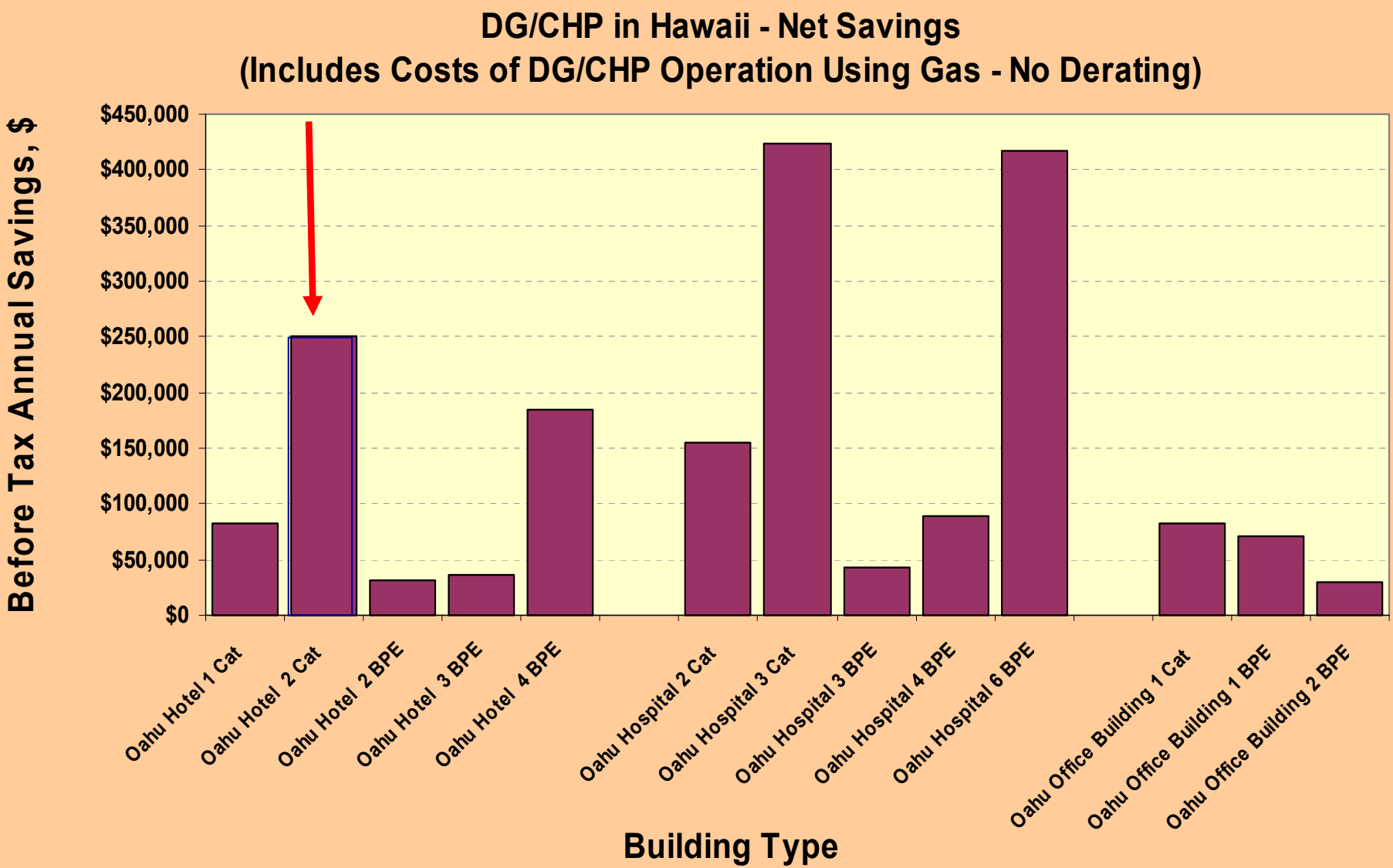
Diesel

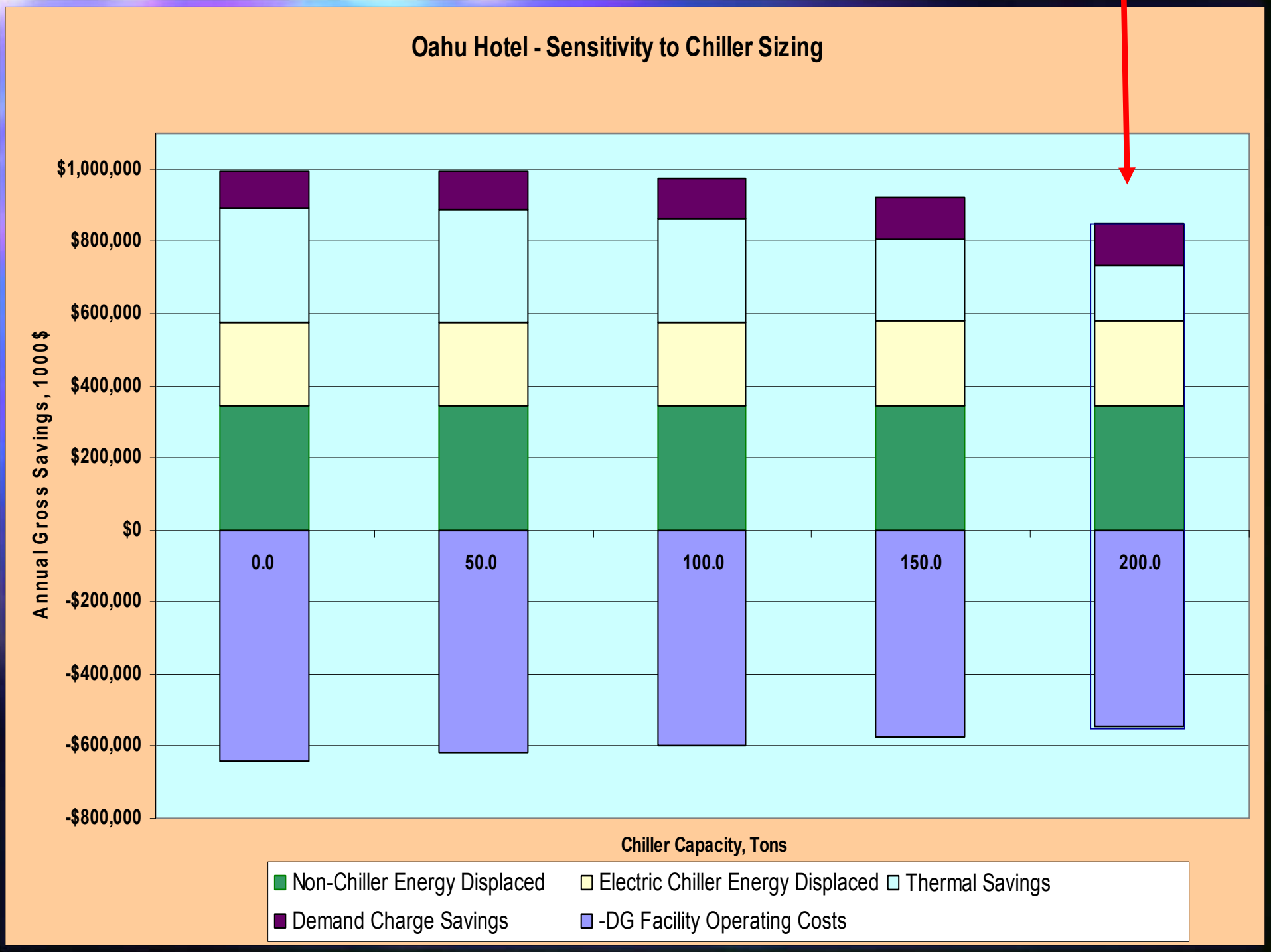


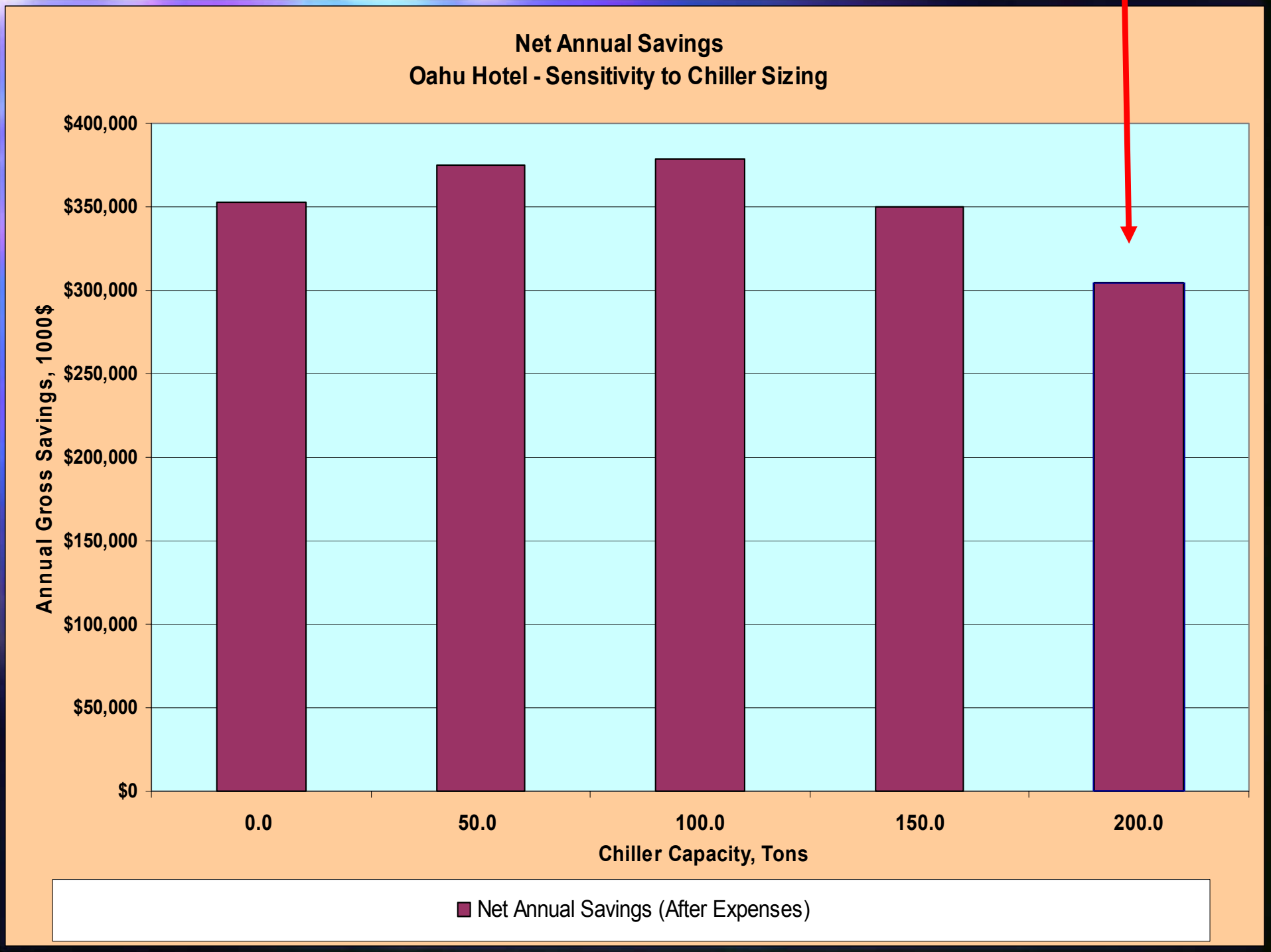
SNG



Oahu - Net Annual Savings – Base Case
(100% of Demand Savings / No Standby Charges)
SNG vs. Diesel (22% Higher Price / Same Performance)




Oahu Hotel - Sensitivity to Chiller Sizing
$1,000,000
$800,000
$600,000
$400,000
$200,000
$0
-$200,000
-$400,000
-$600,000
-$800,000
Annual Gross Savings, 1000$
0.0
50.0
100.0
150.0
200.0
Chiller Capacity, Tons
Non-Chiller Energy Displaced
Electric Chiller Energy Displaced
Thermal Savings
Demand Charge Savings
-DG Facility Operating Costs


Net Annual Savings
Oahu Hotel - Sensitivity to Chiller Sizing
$400,000
$350,000
$300,000
$250,000
$200,000
$150,000
$100,000
$50,000
$0
Annual Gross Savings, 1000$
0.0
50.0
100.0
150.0
200.0
Chiller Capacity, Tons
Net Annual Savings (After Expenses)

Oahu Hotel – Indicative Economics
Host Owns Project – IRR

Total Investment	$1.5 MM
Amount Financed	$0.0 MM
Owners Equity	$1.5 MM

UNLEVERAGED

Pop-Up Summary of Project Metrics

IRR, NPV and Payback | Revenues | Expenses | Debt Service | Cash Flow

Cash Flow, 1000$/yr	Debt Financing Selected	1	2	3	10
	Year	2005	2007	2008	2015
Total Operating Revs. (Taxable & Non-Taxable)		840,140	861,144	882,673	1,049,220
Interest on Reserves		-	-	-	-
- Total Op Costs (Deductible & Not Deductible)		(622,250)	(637,048)	(650,701)	(757,438)
- Total Debt Service or Capital Lease P&I Pmts		-	-	-	-
Net Operating Cash Flow Before Tax		$217,891	$224,096	$231,971	$291,782
State Income Taxes (-Expense) / +Benefits		$(10,308)	$(7,340)	$(8,370)	$(14,347)
Federal Income Taxes (-Expense) / +Benefits		$(52,763)	$(37,574)	$(42,845)	$(73,440)
Total Net Annual Operating Cash Flow After Tax		$154,819	$179,181	$180,756	$203,994

Cash Flow Notes: The Total Net Annual Operating Cash Flow After Tax does not include the following as applicable: 1) Equity Infusions / Distributions, 2) Liquidation of Land Value, Working Capital, Spare Parts or Reserve Accounts, 3) Salvage of Asset, 4) Capital Gains Taxes on Recapture of Depreciation, or 5) After-Tax Distributions and Dividends.

For summaries of these amounts please refer to the detailed report in Table 7 - Cash Flow.

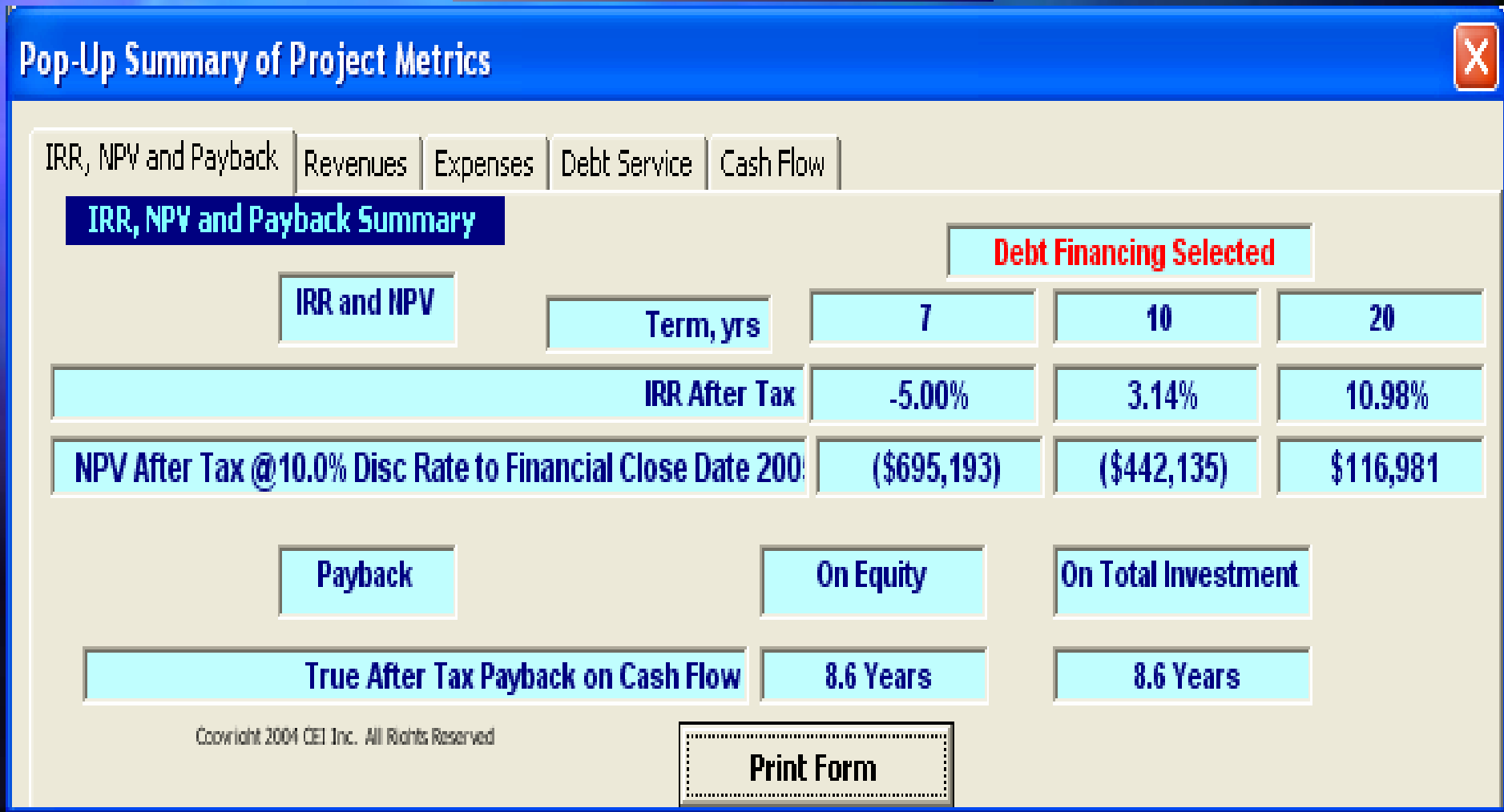
Print Form

Oahu Hotel – Indicative Economics

Host Owns Project – IRR

Total Investment	$1.5 MM
Amount Financed	$0.0 MM
Owners Equity	$1.5 MM

UNLEVERAGED



Oahu Hotel – Indicative Economics
Host Owns Project - IRR

Total Investment	$1.6 MM
Amount Financed	$1.1 MM
Owners Equity	$0.5 MM

LEVERAGED

Pop-Up Summary of Project Metrics

IRR, NPV and Payback | Revenues | Expenses | Debt Service | Cash Flow

Cash Flow, 1000$/yr	Debt Financing Selected	1	2	3	10
	Year	2005	2007	2008	2015
Total Operating Revs. (Taxable & Non-Taxable)		840,140	861,144	882,673	1,049,220
Interest on Reserves		573	573	573	573
- Total Op Costs (Deductible & Not Deductible)		(622,598)	(637,397)	(651,033)	(757,647)
- Total Debt Service or Capital Lease P&I Pmts		(167,847)	(167,847)	(167,847)	(167,847)
Net Operating Cash Flow Before Tax		$50,268	$56,473	$64,366	$124,298
State Income Taxes (-Expense) / +Benefits		$(4,514)	$(1,906)	$(3,373)	$(13,525)
Federal Income Taxes (-Expense) / +Benefits		$(23,106)	$(9,755)	$(17,263)	$(69,232)
Total Net Annual Operating Cash Flow After Tax		$22,648	$44,811	$43,730	$41,542

Cash Flow Notes: The Total Net Annual Operating Cash Flow After Tax does not include the following as applicable: 1) Equity Infusions / Distributions, 2) Liquidation of Land Value, Working Capital, Spare Parts or Reserve Accounts, 3) Salvage of Asset, 4) Capital Gains Taxes on Recapture of Depreciation, or 5) After-Tax Distributions and Dividends.

For summaries of these amounts please refer to the detailed report in Table 7 - Cash Flow.

Print Form

Oahu Hotel – Indicative Economics
Host Owns Project - IRR

Total Investment	$1.6 MM
Amount Financed	$1.1 MM
Owners Equity	$0.5 MM

LEVERAGED

Pop-Up Summary of Project Metrics

IRR, NPV and Payback | Revenues | Expenses | Debt Service | Cash Flow

IRR, NPV and Payback Summary

IRR and NPV	Term, yrs	Debt Financing Selected: 7	10	20
IRR After Tax		-11.87%	-1.99%	15.21%
NPV After Tax @10.0% Disc Rate to Financial Close Date 200		($292,997)	($230,260)	$329,417

Payback	On Equity	On Total Investment
True After Tax Payback on Cash Flow	10.3 Years	15.3 Years

Print Form

Oahu Hotel - Investor Owns Project – IRR Shares 10% of Savings with Host

Total Investment	$1.6 MM
Amount Financed	$1.1 MM
Owners Equity	$0.5 MM

Pop-Up Summary of Project Metrics

IRR, NPV and Payback | Revenues | Expenses | Debt Service | Cash Flow

Cash Flow, 1000$/yr	Debt Financing Selected	1	2	3	10
	Year	2005	2007	2008	2015
Total Operating Revs. (Taxable & Non-Taxable)		840,140	861,144	882,673	1,049,220
Interest on Reserves		573	573	573	573
- Total Op Costs (Deductible & Not Deductible)		(706,612)	(723,511)	(739,300)	(862,569)
- Total Debt Service or Capital Lease P&I Pmts		(167,847)	(167,847)	(167,847)	(167,847)
Net Operating Cash Flow Before Tax		$(33,747)	$(29,642)	$(23,902)	$19,376
State Income Taxes (-Expense) / +Benefits		$863	$3,606	$2,277	$(6,810)
Federal Income Taxes (-Expense) / +Benefits		$4,417	$18,456	$11,653	$(34,859)
Total Net Annual Operating Cash Flow After Tax		$(28,466)	$(7,581)	$(9,972)	$(22,293)

Cash Flow Notes: The Total Net Annual Operating Cash Flow After Tax does not include the following as applicable: 1) Equity Infusions / Distributions, 2) Liquidation of Land Value, Working Capital, Spare Parts or Reserve Accounts, 3) Salvage of Asset, 4) Capital Gains Taxes on Recapture of Depreciation, or 5) After-Tax Distributions and Dividends.

For summaries of these amounts please refer to the detailed report in Table 7 - Cash Flow.

Print Form

Oahu Hotel - Investor Owns Project – IRR Shares 10% of Savings with Host

Total Investment	$1.6 MM
Amount Financed	$1.1 MM
Owners Equity	$0.5 MM

Pop-Up Summary of Project Metrics

IRR, NPV and Payback | Revenues | Expenses | Debt Service | Cash Flow

IRR, NPV and Payback Summary

Debt Financing Selected

IRR and NPV	Term, yrs	7	10	20
IRR After Tax		#DIV/0!	#DIV/0!	7.06%
NPV After Tax @10.0% Disc Rate to Financial Close Date 200		($558,802)	($575,432)	($186,106)

Payback	On Equity	On Total Investment
True After Tax Payback on Cash Flow	14.2 Years	< 1 yr. or > 20 yrs.

Print Form

Oahu Hotel - Investor Owns Project – IRR Shares 10% of Savings with Host Optimized Chiller Size and Operation

Pop-Up Summary of Project Metrics

IRR, NPV and Payback | Revenues | Expenses | Debt Service | Cash Flow

Cash Flow, 1000$/yr	Debt Financing Selected	1	2	3	10
	Year	2005	2007	2008	2015
Total Operating Revs. (Taxable & Non-Taxable)		918,937	941,911	965,459	1,147,627
Interest on Reserves		543	543	543	543
- Total Op Costs (Deductible & Not Deductible)		(704,995)	(721,893)	(737,763)	(861,599)
- Total Debt Service or Capital Lease P&I Pmts		(159,250)	(159,250)	(159,250)	(159,250)
Net Operating Cash Flow Before Tax		$55,235	$61,310	$68,988	$127,321
State Income Taxes (-Expense) / +Benefits		$(4,771)	$(2,314)	$(3,717)	$(13,440)
Federal Income Taxes (-Expense) / +Benefits		$(24,422)	$(11,844)	$(19,026)	$(68,796)
Total Net Annual Operating Cash Flow After Tax		$26,042	$47,152	$46,246	$45,084

Cash Flow Notes: The Total Net Annual Operating Cash Flow After Tax does not include the following as applicable: 1) Equity Infusions / Distributions, 2) Liquidation of Land Value, Working Capital, Spare Parts or Reserve Accounts, 3) Salvage of Asset, 4) Capital Gains Taxes on Recapture of Depreciation, or 5) After-Tax Distributions and Dividends.

For summaries of these amounts please refer to the detailed report in Table 7 - Cash Flow.

Print Form

Oahu Hotel - Investor Owns Project – IRR Shares 10% of Savings with Host Optimized Chiller Size and Operation

Pop-Up Summary of Project Metrics

IRR, NPV and Payback | Revenues | Expenses | Debt Service | Cash Flow

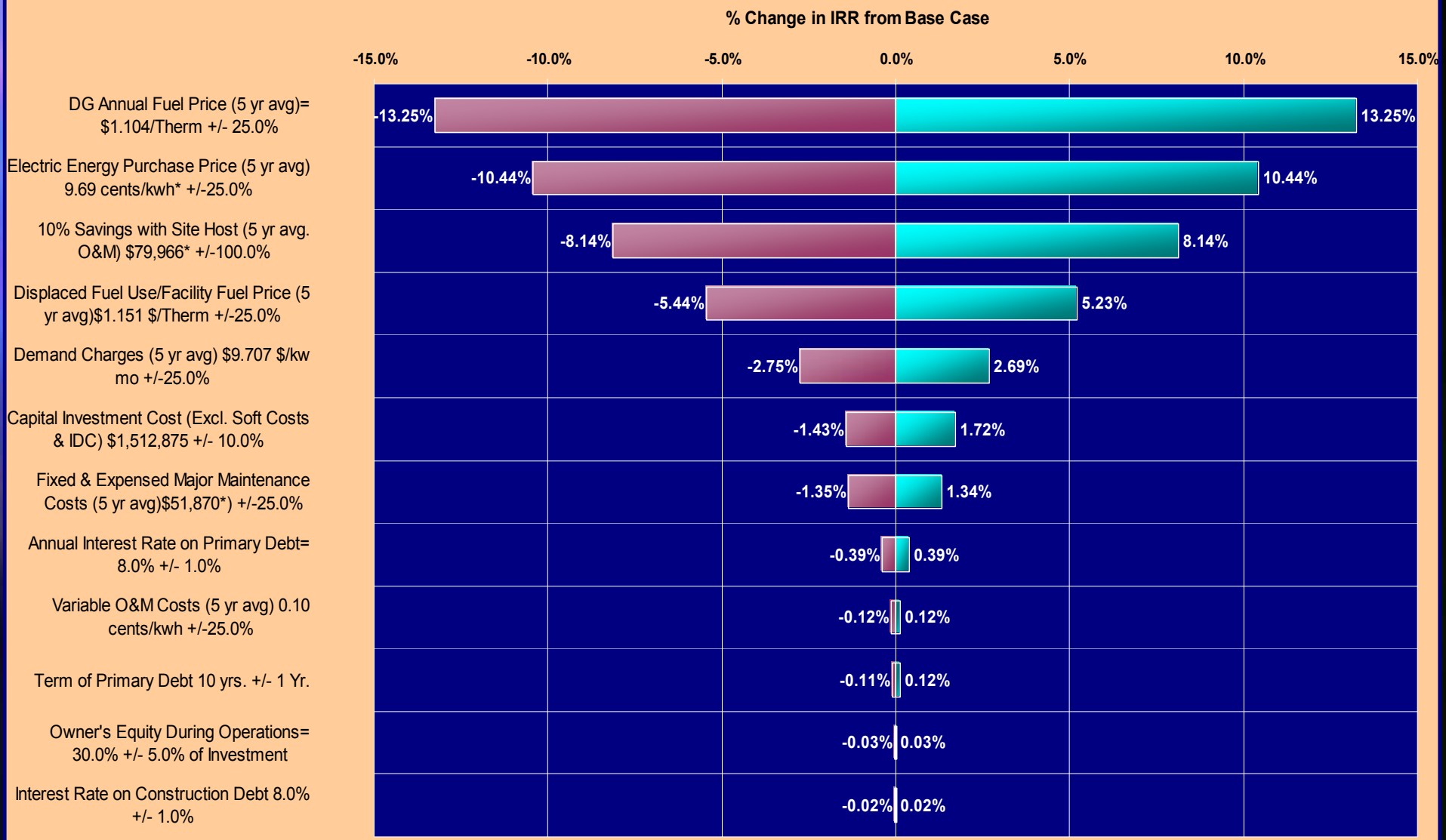
IRR, NPV and Payback Summary

IRR and NPV	Term, yrs	Debt Financing Selected: 7	10	20
IRR After Tax		-9.48%	-0.05%	15.98%
NPV After Tax @10.0% Disc Rate to Financial Close Date 200		($254,406)	($187,850)	$358,644

Payback	On Equity	On Total Investment
True After Tax Payback on Cash Flow	10.0 Years	14.9 Years

Print Form

Tornado Diagram - Sensitivity of After Tax IRR to Changes in Capital Cost, Equity Investment, Debt and Lease Related Inputs Base Case 20 yr. IRR= 7.1% for the Oahu Hotel - 2 x Cat Project



Kauai Hotel – Indicative Economics

Host Owns Project – IRR

Total Investment	$1.5 MM
Amount Financed	$0.0 MM
Owners Equity	$1.5 MM

UNLEVERAGED

Pop-Up Summary of Project Metrics

IRR, NPV and Payback | Revenues | Expenses | Debt Service | Cash Flow

Cash Flow, 1000$/yr	Debt Financing Selected	1	2	3	10
	Year	2005	2007	2008	2015
Total Operating Revs. (Taxable & Non-Taxable)		1,507,091	1,544,768	1,583,388	1,882,150
Interest on Reserves		-	-	-	-
- Total Op Costs (Deductible & Not Deductible)		(675,487)	(691,616)	(706,633)	(823,924)
- Total Debt Service or Capital Lease P&I Pmts		-	-	-	-
Net Operating Cash Flow Before Tax		$831,604	$853,152	$876,754	$1,058,227
State Income Taxes (-Expense) / +Benefits		$(49,586)	$(47,600)	$(49,636)	$(63,400)
Federal Income Taxes (-Expense) / +Benefits		$(253,816)	$(243,653)	$(254,076)	$(324,528)
Total Net Annual Operating Cash Flow After Tax		$528,203	$561,900	$573,042	$670,299

Cash Flow Notes: The Total Net Annual Operating Cash Flow After Tax does not include the following as applicable: 1) Equity Infusions / Distributions, 2) Liquidation of Land Value, Working Capital, Spare Parts or Reserve Accounts, 3) Salvage of Asset, 4) Capital Gains Taxes on Recapture of Depreciation, or 5) After-Tax Distributions and Dividends.

For summaries of these amounts please refer to the detailed report in Table 7 - Cash Flow.

Print Form

Kauai Hotel – Indicative Economics
Host Owns Project – IRR

Total Investment	$1.5 MM
Amount Financed	$0.0 MM
Owners Equity	$1.5 MM

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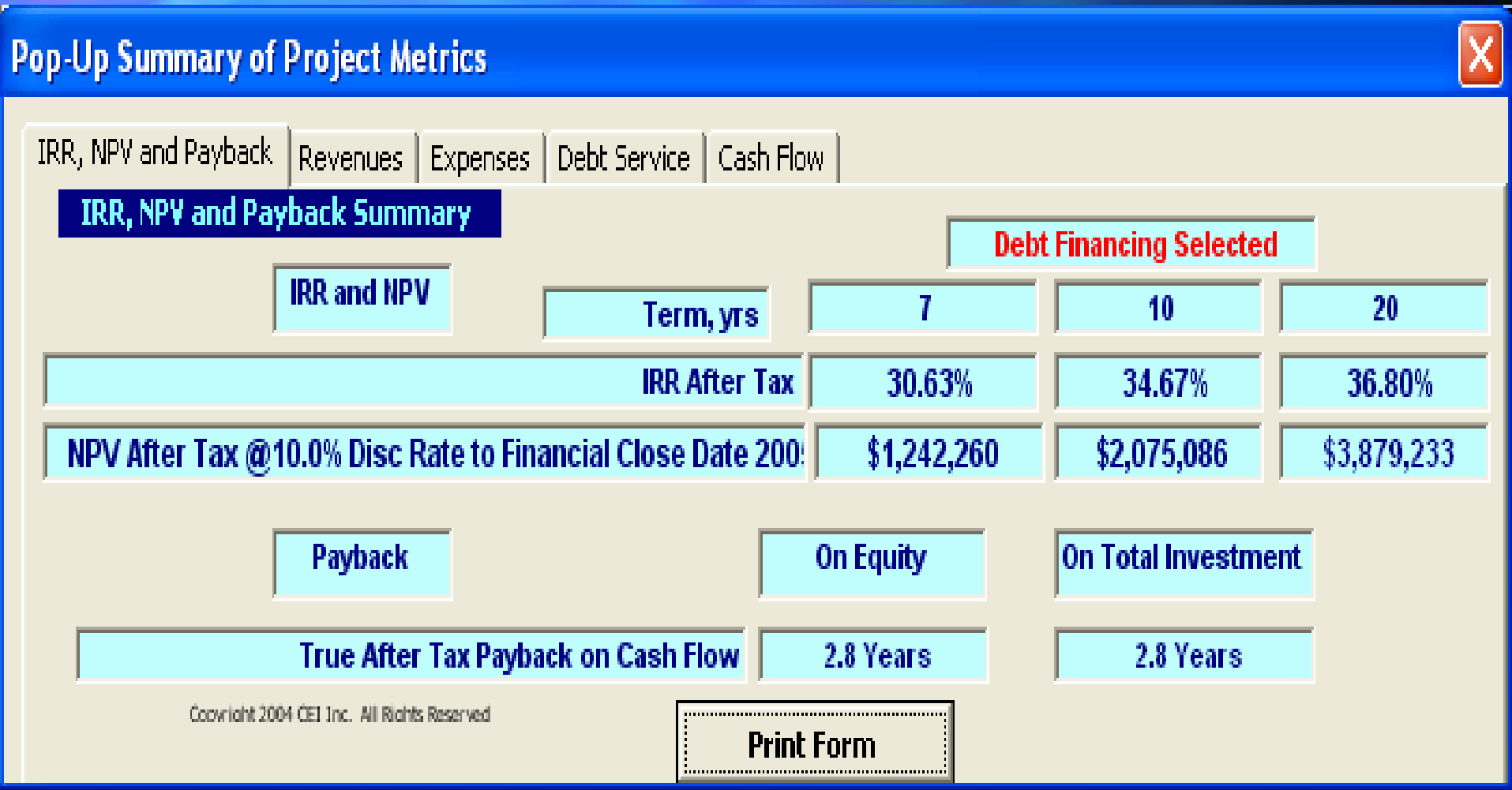


Kauai Hotel – Indicative Economics
Host Owns Project - IRR

Total Investment	$1.6 MM
Amount Financed	$1.1 MM
Owners Equity	$0.5 MM

LEVERAGED

Pop-Up Summary of Project Metrics

IRR, NPV and Payback | Revenues | Expenses | Debt Service | Cash Flow

Cash Flow, 1000$/yr	Debt Financing Selected	1	2	3	10
	Year	2005	2007	2008	2015
Total Operating Revs. (Taxable & Non-Taxable)		1,507,091	1,544,768	1,583,388	1,882,150
Interest on Reserves		573	573	573	573
- Total Op Costs (Deductible & Not Deductible)		(675,836)	(691,966)	(706,965)	(824,133)
- Total Debt Service or Capital Lease P&I Pmts		(168,292)	(168,292)	(168,292)	(168,292)
Net Operating Cash Flow Before Tax		$663,536	$685,084	$708,703	$890,298
State Income Taxes (-Expense) / +Benefits		$(43,776)	$(42,151)	$(44,625)	$(62,575)
Federal Income Taxes (-Expense) / +Benefits		$(224,079)	$(215,760)	$(228,426)	$(320,307)
Total Net Annual Operating Cash Flow After Tax		$395,681	$427,173	$435,652	$507,415

Cash Flow Notes: The Total Net Annual Operating Cash Flow After Tax does not include the following as applicable: 1) Equity Infusions / Distributions, 2) Liquidation of Land Value, Working Capital, Spare Parts or Reserve Accounts, 3) Salvage of Asset, 4) Capital Gains Taxes on Recapture of Depreciation, or 5) After-Tax Distributions and Dividends.

For summaries of these amounts please refer to the detailed report in Table 7 - Cash Flow.

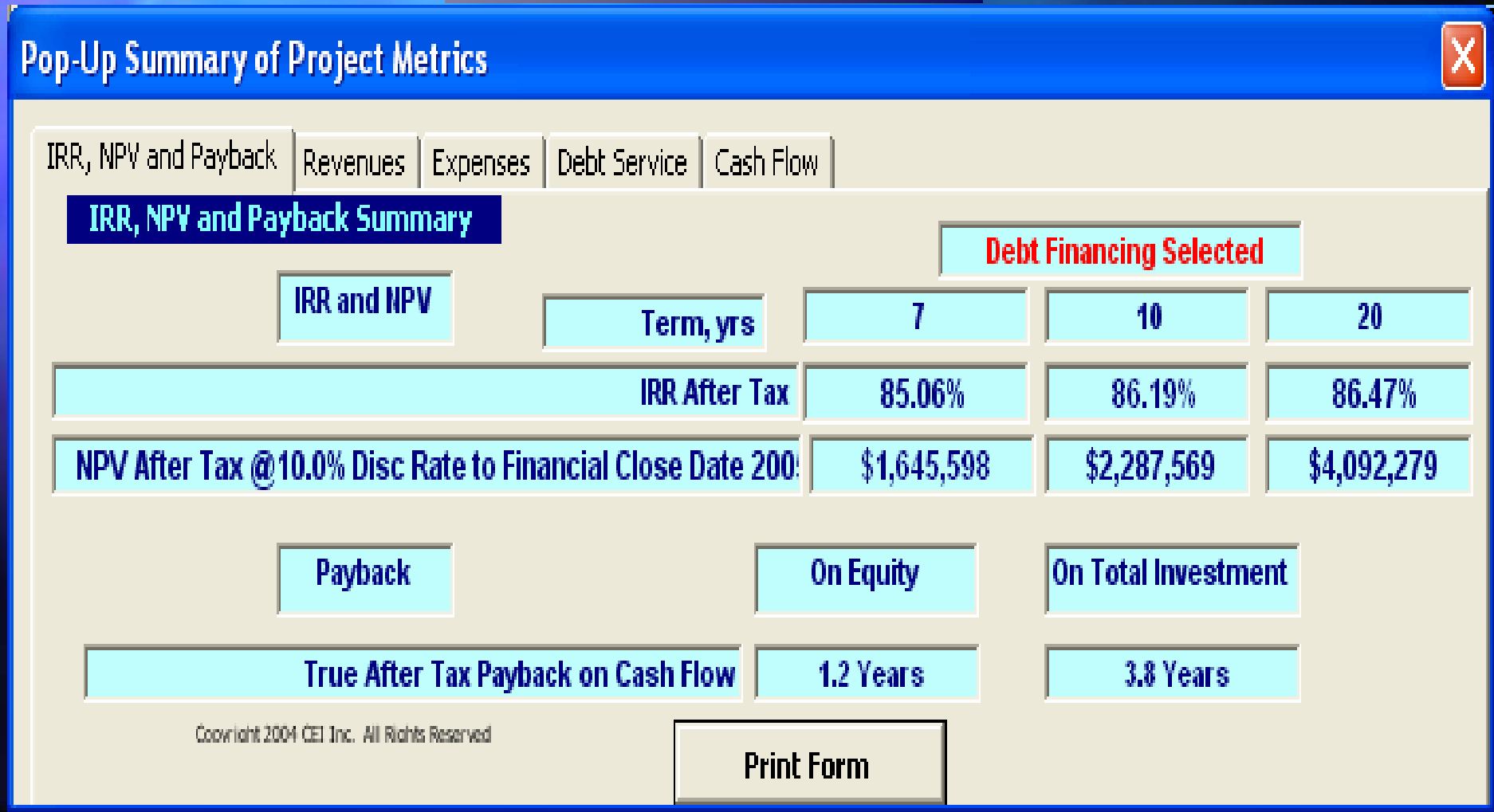
Print Form

Kauai Hotel – Indicative Economics

Host Owns Project - IRR

Total Investment	$1.6 MM
Amount Financed	$1.1 MM
Owners Equity	$0.5 MM

LEVERAGED



Kauai Hotel - Investor Owns Project – IRR Shares 25% of Savings with Host

Total Investment	$1.6 MM
Amount Financed	$1.1 MM
Owners Equity	$0.5 MM

Pop-Up Summary of Project Metrics

IRR, NPV and Payback | Revenues | Expenses | Debt Service | Cash Flow

Cash Flow, 1000$/yr	Debt Financing Selected	1	2	3	10
	Year	2005	2007	2008	2015
Total Operating Revs. (Taxable & Non-Taxable)		1,507,091	1,544,768	1,583,388	1,882,150
Interest on Reserves		573	573	573	573
- Total Op Costs (Deductible & Not Deductible)		(1,091,511)	(1,078,158)	(1,102,812)	(1,294,671)
- Total Debt Service or Capital Lease P&I Pmts		(168,292)	(168,292)	(168,292)	(168,292)
Net Operating Cash Flow Before Tax		$247,861	$298,892	$312,856	$419,760
State Income Taxes (-Expense) / +Benefits		$(17,173)	$(17,435)	$(19,291)	$(32,461)
Federal Income Taxes (-Expense) / +Benefits		$(87,904)	$(89,244)	$(98,747)	$(166,159)
Total Net Annual Operating Cash Flow After Tax		$142,784	$192,213	$194,818	$221,140

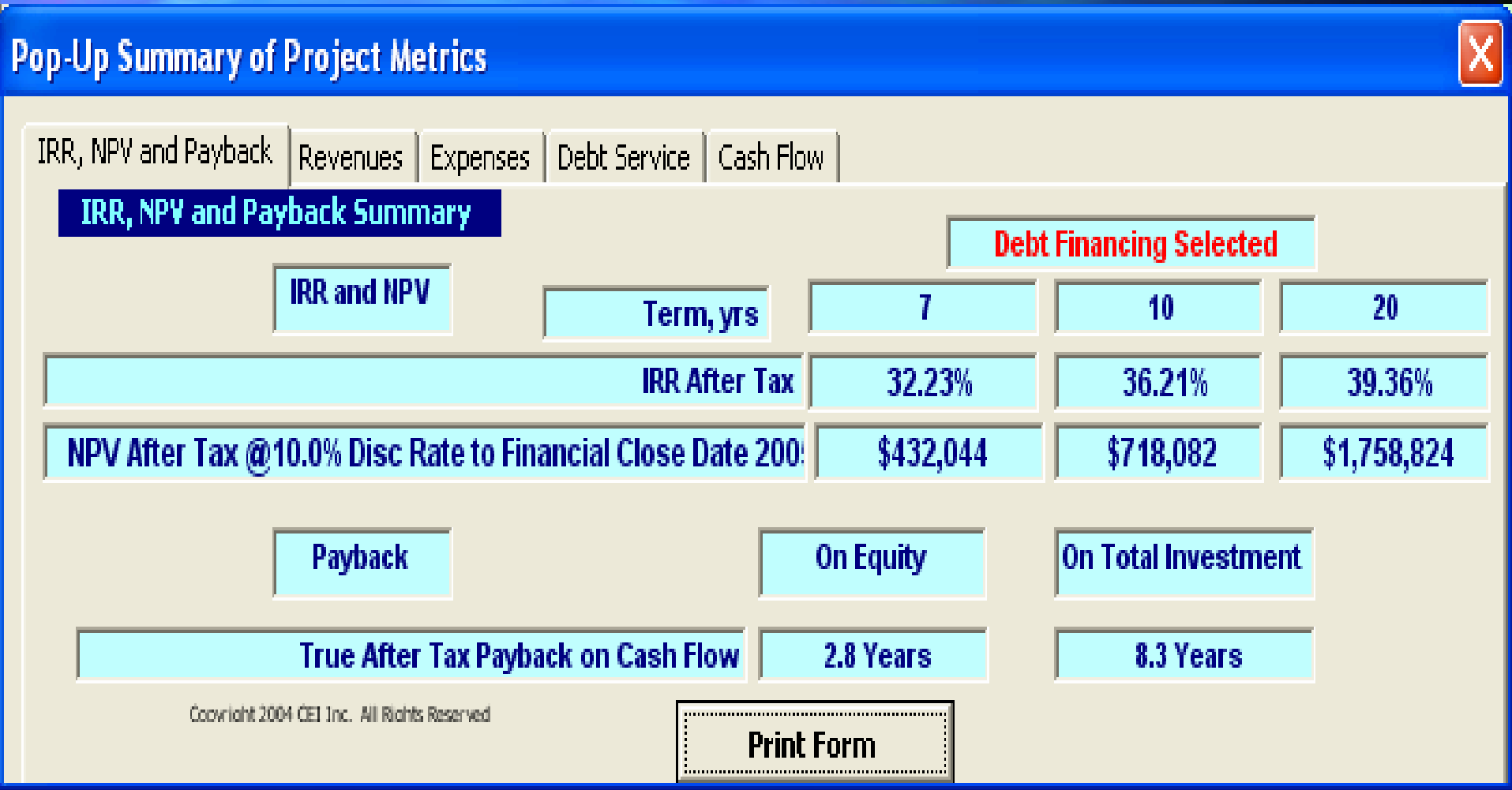
Cash Flow Notes: The Total Net Annual Operating Cash Flow After Tax does not include the following as applicable: 1) Equity Infusions / Distributions, 2) Liquidation of Land Value, Working Capital, Spare Parts or Reserve Accounts, 3) Salvage of Asset, 4) Capital Gains Taxes on Recapture of Depreciation, or 5) After-Tax Distributions and Dividends.

For summaries of these amounts please refer to the detailed report in Table 7 - Cash Flow.

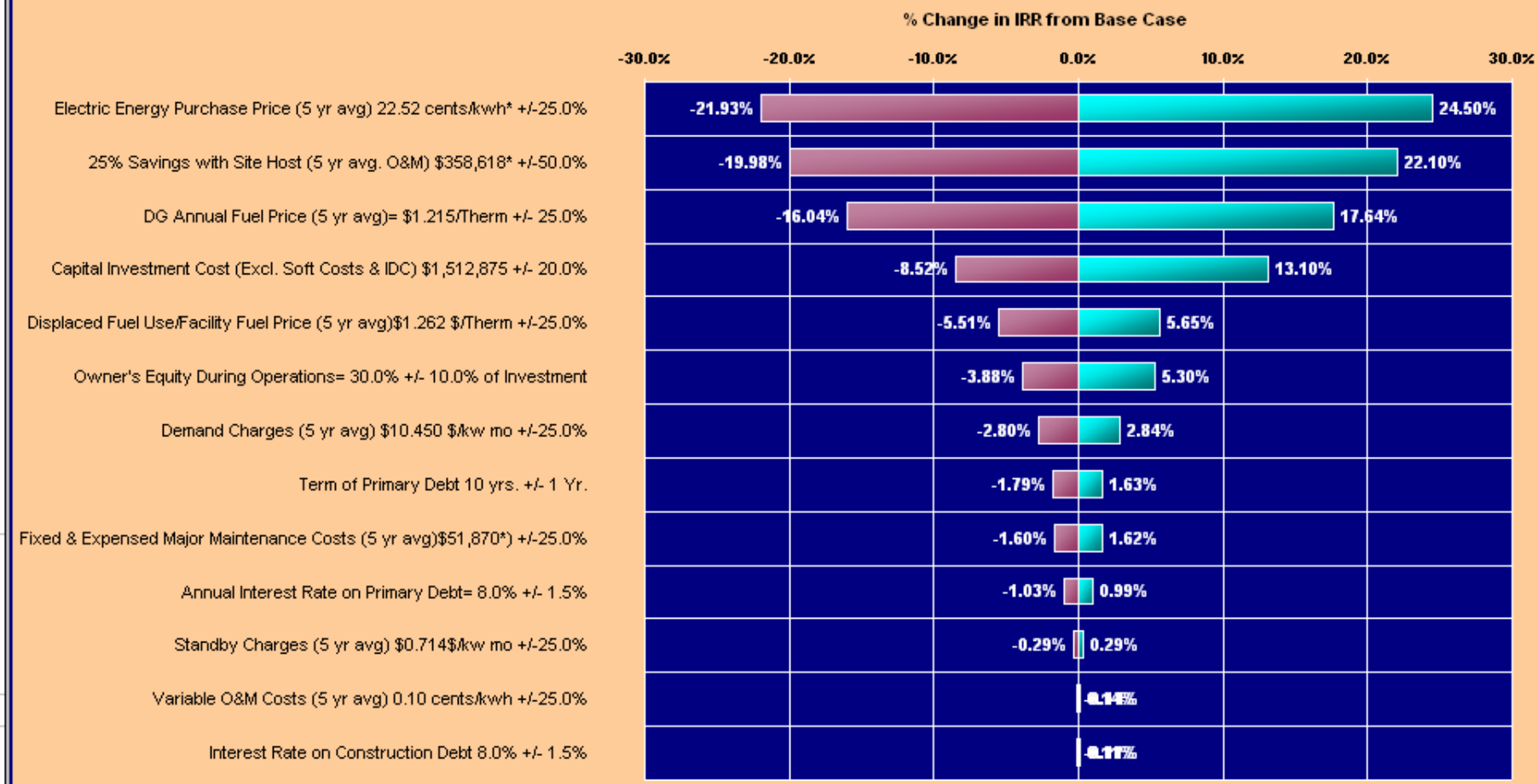
Print Form

Kauai Hotel - Investor Owns Project – IRR Shares 25% of Savings with Host

Total Investment	$1.6 MM
Amount Financed	$1.1 MM
Owners Equity	$0.5 MM



Tornado Diagram - Sensitivity of After Tax IRR
to Changes in Capital Cost, Equity Investment, Debt and Lease Related Inputs
Base Case 20 yr. IRR= 39.4%
for the Kauai Hotel - 2 x CAT Project



Maui Hotel - Investor Owns Project – IRR Shares 10% of Savings with Host

Total Investment	$1.6 MM
Amount Financed	$1.1 MM
Owners Equity	$0.5 MM

Pop-Up Summary of Project Metrics

IRR, NPV and Payback | Revenues | Expenses | Debt Service | Cash Flow

Cash Flow, 1000$/yr	Debt Financing Selected	1	2	3	10
	Year	2005	2007	2008	2015
Total Operating Revs. (Taxable & Non-Taxable)		1,186,242	1,215,898	1,246,296	1,481,454
Interest on Reserves		573	573	573	573
- Total Op Costs (Deductible & Not Deductible)		(794,460)	(813,555)	(831,595)	(972,279)
- Total Debt Service or Capital Lease P&I Pmts		(168,292)	(168,292)	(168,292)	(168,292)
Net Operating Cash Flow Before Tax		$224,063	$234,624	$246,982	$341,456
State Income Taxes (-Expense) / +Benefits		$(15,650)	$(13,322)	$(15,075)	$(27,449)
Federal Income Taxes (-Expense) / +Benefits		$(80,108)	$(68,190)	$(77,166)	$(140,507)
Total Net Annual Operating Cash Flow After Tax		$128,305	$153,113	$154,740	$173,500

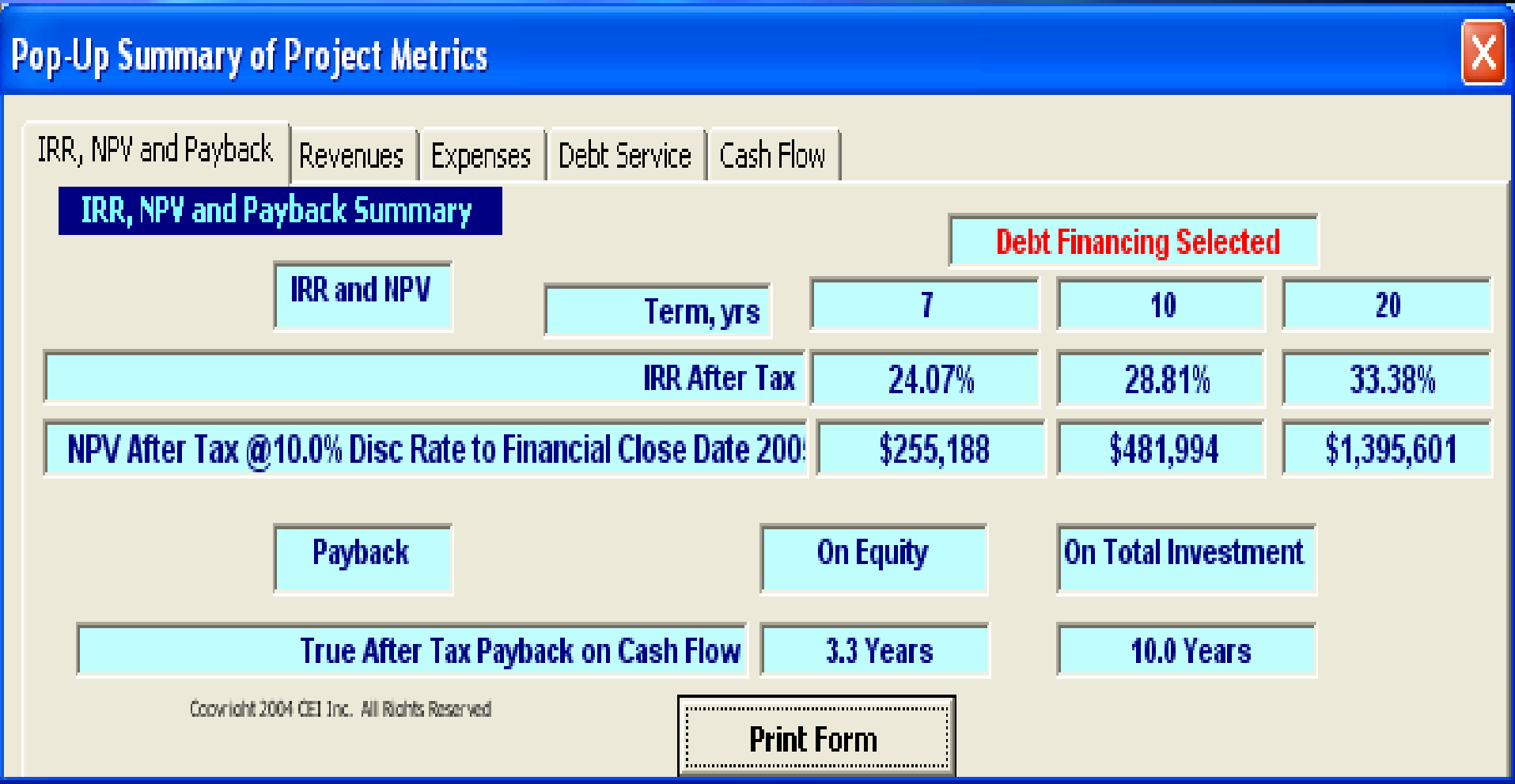
Cash Flow Notes: The Total Net Annual Operating Cash Flow After Tax does not include the following as applicable: 1) Equity Infusions / Distributions, 2) Liquidation of Land Value, Working Capital, Spare Parts or Reserve Accounts, 3) Salvage of Asset, 4) Capital Gains Taxes on Recapture of Depreciation, or 5) After-Tax Distributions and Dividends.

For summaries of these amounts please refer to the detailed report in Table 7 - Cash Flow.

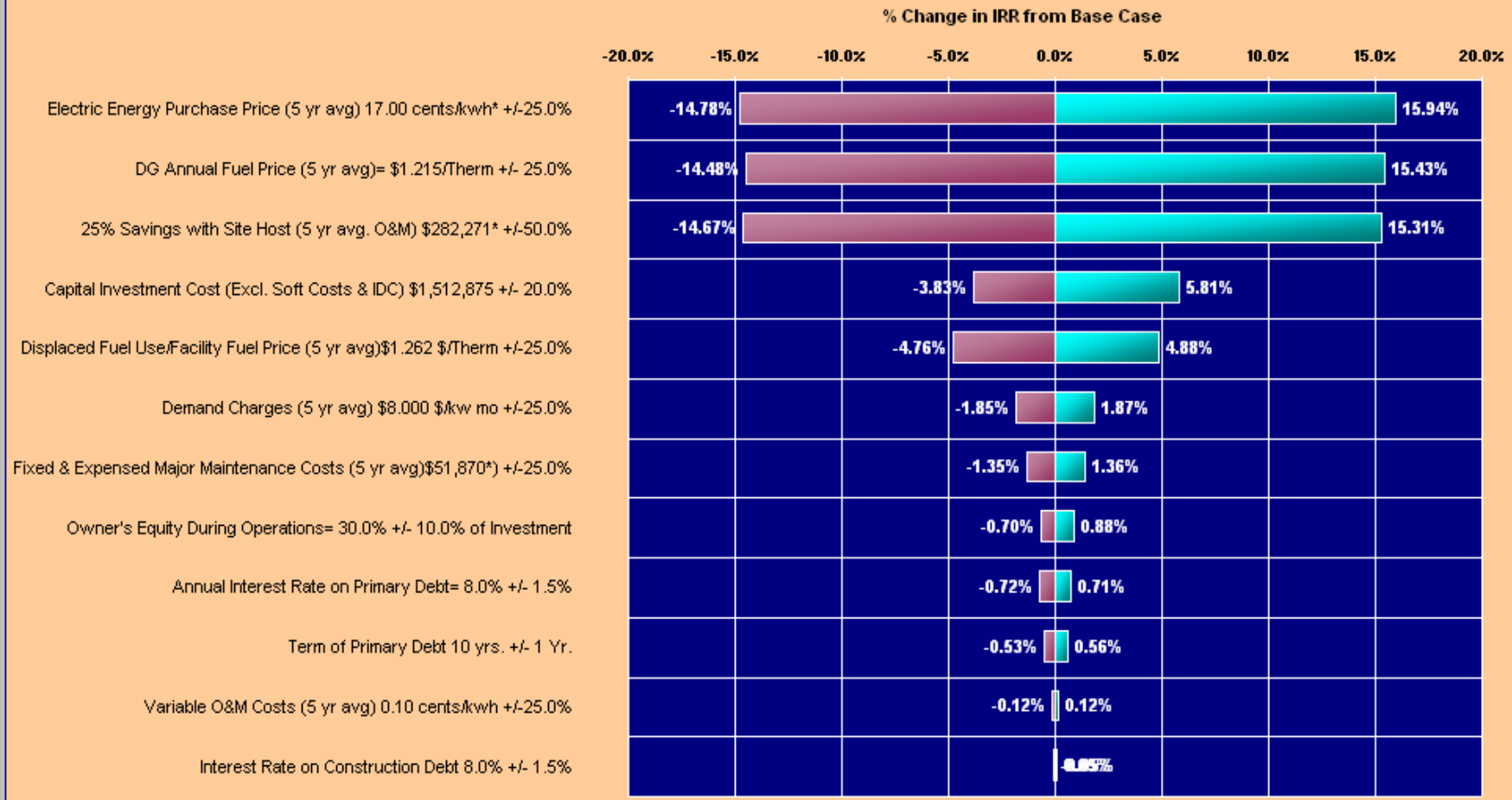
Print Form

Maui Hotel - Investor Owns Project – IRR Shares 10% of Savings with Host

Total Investment	$1.6 MM
Amount Financed	$1.1 MM
Owners Equity	$0.5 MM



Tornado Diagram - Sensitivity of After Tax IRR
to Changes in Capital Cost, Equity Investment, Debt and Lease Related Inputs
Base Case 20 yr. IRR= 14.8%
for the Maui Hotel - 2 x CAT Project



Summary of Economic Results - Hotel

Typical Host Savings 1000 $ / yr

Owner	HECO Docket	Host	3rd Party	3rd Party	Host	3rd Party	3rd Party	3rd Party
Island	Oahu	Oahu	Oahu	Oahu	Kauai	Kauai	Maui	Maui
Chillers	NO	MAX	MAX	OPT	MAX	MAX	MAX	MAX
Percent Savings to Host	~10%	100%	10%	10%	100%	25%	10%	75%
Investment, 1000$		$1,600	$1,600	$1,520	$1,600	$1,600	$1,600	$1,600
Non-Chiller Energy Displaced	$45	$345	$35	$35	$801	$200	$62	$155
Electric Chiller Energy Displaced		$234	$23	$23	$545	$136	$42	$105
Thermal Savings	$50	$154	$15	$29	$169	$42	$17	$42
Demand Charge Savings		$116	$12	$11	$125	$31	$10	$25
- DG Facility Operating Costs		-$545			-$599			
Host Net Annual Savings (After Expenses)	$95	$305	$85	$98	$1,042	$410	$131	$327

Conclusions and Recommendations (1 of 3)

- HI presents a very exciting market opportunity for CHP
- Economics are Island and Site Specific
- Economics of 3rd Party Ownership are better on Neighbor Islands
  - Oahu – Strong preference for sites with substantial thermal uses
  - Maui and Big Island – Most applications attractive subject to optimization, efficient design and risk management
  - Kauai – Very strong economics driven by high cost of energy

Conclusions and Recommendations (2 of 3)

- Economics tend to favor diesel based on lower cost
  - Transportation, storage, permitting and environmental benefits of gas fuels can overcome this difference at many sites
  - Both Diesel and Gas Fuels can exhibit attractive returns, especially on Neighbor Islands.
- The HECO Docket provides an attractive option for hosts
  - Especially on Oahu where electric rates are lower
  - Guaranteed savings
  - Capital and risk management by the Utility
- In many circumstances host or 3rd Party Ownership can offer additional savings compared to regulated projects

Conclusions and Recommendations (3 of 3)

Each site will have its own unique features that must be addressed to maximize value.

Third Party Profitability and Success will depend on:

- Site Specifics
- Selecting the optimum configuration of equipment & operations to match the site needs
- Reliability
- Management of fuel pricing risk
- Efficient use of waste heat
- Proper and Thorough Analysis and Engineering

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