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**Response of the Attorney General to
PSC Order dated May 5, 2005
Pertaining to Louisville Gas & Electric Company
Case No. 2004-00507**

Witness Responding: David H. Brown Kinloch

Q.1. Refer to pages 7 and 8 of the Testimony of David H. Brown Kinloch, regarding when LG&E and KU will need new capacity. The testimony states that no new capacity will be needed until 2012, which is 2 years later than proposed in the application. How does Mr. Kinloch reconcile this statement with Exhibit DHBK-3, which shows 2011 as the year in which the LG&E and KU reserve margin will fall below the lower band of their target reserve margin, after recognition of demand side management impacts?

Answer:

Please refer to Exhibit DHBK-3. This exhibit shows that LG&E/KU would have a reserve margin 11.9% in 2011, which is very close to the bottom of the target range of 12%. The Companies would miss the target range by just 7 MW, out of a total supply of 8,119 MW. This is less than one-tenth of one percent. The 2011 capacity is approximately at the bottom of the reserve margin target range.

Constructing 750 MW (75% for the Companies) of expensive baseload capacity to meet a projected 7 MW deficit with respect to a target reserve margin creates substantial unnecessary expense. Exhibit DHBK-4 shows that the cost to ratepayers to add this capacity for 2011 would be over \$72 million. It is assumed that LG&E/KU could purchase 7 MW of capacity for the summer months of 2011 for a small fraction of the \$72 million cost.

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Q.2. Refer to pages 8 and 9 of the Kinloch Testimony, the discussion of the costs and benefits of having excess baseload capacity before it is needed.

a. Has Mr. Kinloch determined how much the cost of Trimble County Unit 2 would increase if the project is delayed 2 years to 2012?

Answer:

It is not possible to determine at this time if the cost of this project would be higher, lower, or the same, two years from now. For example, the cost of steel and copper are very high right now, but could go down in the next two years.

Another example is the overall cost. Trimble County 1 was built for a cost of \$1,444 per KW in 1990. Now, 15 years later, the projected cost of Trimble 2 is in the same price range at \$1,600 per KW. Other lower cost options could also develop in the next two years.

b. If this determination has been made, provide the amount of the cost of Trimble County Unit 2 if the project is delayed 2 years and compare the revised cost to the original cost presented in the application.

Answer:

See response to part (a) above.

c. If this amount has been determined, explain why it was not part of Mr. Kinloch's analysis of the costs and benefits of excess baseload capacity.

Answer:

See response to part (a) above.

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Q.3. Refer to pages 11 and 12 of the Kinloch Testimony, the discussion of the age of LG&E's and KU's baseload units. Given the age of some of these units, explain why it would not be appropriate to begin the process of adding new capacity as insurance against potential "equipment failure."

Answer:

The 2005 LG&E/KU IRP shows no "Planned Retirements" of existing generating units through 2019 (See Table 8.(4)(a)-1). If the Companies believe that their older units are at risk of failure in the near future, it is unlikely that the 2005 IRP would show them in service through 2019. There is no reason to believe that any LG&E/KU plant will experience failure such that repairs were not economically feasible. It should also be noted that the 2005 IRP shows that older units are expected to have very low run times (some units have a projected capacity factors of 0.0%). Their failure would thus not justify adding expensive new baseload capacity simply to fill a reserve margin.

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Q.4. Refer to page 17 of the Kinloch Testimony, the discussion of the value of green tags associated with Marketer F's response to LG&E/KU's RFP.

a. Do the requirements cited in Illinois and Michigan allocate a value on renewables produced outside of their respective states? If yes, what is that value today?

Answer:

The value of green tags generated outside a specific state is the same as inside the state, as long as they are interconnected to that state. Kentucky is in the ECAR region with Illinois, Michigan and Ohio. Attached are the Green-e Renewable Energy Certification Program Standards that explain which projects qualify in different regions of the country. Table 2, at the bottom of page 8 and the top of page 9, shows that Kentucky projects qualify in Illinois, Michigan, and Ohio. See the Green-e.com website for a complete description of the certification program.

On page 17 of my testimony, on lines 20 and 21, I state, "Current hydro Green Tags in the Midwest are worth only a few mils, as regional portfolio standards are just now being implemented."

b. Are the levels of required renewable generation in those states expected to increase over time? If yes, at what rates?

Answer:

Yes. Table 1, located on page 6 of the attached Green-e Renewable Energy Certification Program Standards, show how renewable energy portfolio standards will increase over time on a state-by-state basis. In Ohio, the standard will increase from 5% in 2003 to 20% in 2006.

The standard does not change for Illinois and Michigan, but the content of the products will change. Currently, 100% renewable energy products must contain at least 50% new renewable energy. In 2008 and beyond, 100% renewable products must contain only new renewable energy (new projects are those brought on-line, repowered, or added additional capacity after the legislation was passed in those states).

c. Provide any workpapers or other information supporting the assessment of the value of Marketer F's green tags shown in Exhibits-DHBK 5 and 6.

Answer:

On page 17 of my testimony, I stated that "I am aware of projections for Green Tags associated with hydro that range from just a few mils to estimates of about 20 mils. Currently, Green Tags associated with hydro are being marketed to the retail market on the East Coast for 12 mils." The referenced projections came from discussing future markets with brokers that work in these markets. A common projection for the end of this decade was the "mid to high single digits" estimate I received from a broker in Chicago. This is a reference to mils per kWh.

Based on this, I used an estimate of 6 mils, which was half of the current price at which hydro Green Tags are being sold on the East Coast. To be conservative, I also ran the analysis at half again that price, or 3 mils. Three mils is extremely conservative considering these Tags are currently selling at near that level in the Midwest.



Green-e Competitive Electricity Standard: All Regions

Green-e Renewable Energy Certification

1
2 **Updated December 7, 2004**

3
4 This is the Green-e Standard for Electricity Products in competitive markets in New England,
5 New York, Mid Atlantic, Ohio, Texas, Illinois and Michigan. To view Green-e certification
6 standards for Tradable Renewable Certificates (TRC) please see: www.green-e.org. To view
7 Green-e accreditation standards for green pricing programs in regulated markets please see:
8 www.resource-solutions.org.

9
10 **I. Renewable Energy Content**

11 **1. Percentage-of-Use Products**

12 In New England, New York, California, Ohio and the Mid Atlantic, retail electricity
13 offerings or "electricity products" that serve 100% of a residential customer's load must
14 contain at least 50% renewable energy based on the product supply mix and meet the
15 New Renewable Energy Content requirements (see III below).

16
17 In Texas, Illinois and Michigan retail electricity offerings that serve 100% of a residential
18 customer's load must contain at least 50% new renewable electricity plus any state
19 mandated RPS renewable amount.

20
21 **2. Block Products**

22 In New England, New York, California, Ohio, the Mid Atlantic, Illinois and Michigan,
23 electricity products sold as block products must contain a minimum of 150 kWh/month
24 of new renewable resources.

25
26 In Texas, electricity products sold as block products must be 100% new renewable in a
27 minimum size of 200 kWh/month. Block product certification is only available for blocks
28 sold to commercial customers.

29
30 In monopoly jurisdictions within competitive states, electricity products sold as block
31 products must contain a minimum of 100 kWh/month of new renewable resources.

32
33 **II. Qualifying Sources of Renewable Electricity Generation¹**

34 **1. Geothermal**

35
36 **2. Wind**

37
38 **1. Small & Low Impact Hydropower:** Hydro facilities are eligible if:

- 39
- The output is equal to or less than 30 megawatts; or
 - The facility is certified by the Low Impact Hydropower Institute (LIHI)
- 40

¹ As is consistent with PURPA, renewable energy generation facilities that are 75% or more renewable are permitted. However, only the renewable portion is eligible to count towards the renewable criteria. In the case that the amount of supplemental fuel is less than 5%, the entire output of the facility would be considered renewable

1
2 These standards apply to all regions unless noted in the regional standards below.
3

4 In New England and New York:

- 5 • Hydro facilities relicensed by FERC after 1986 also qualify.

6 When the green power market reaches sufficient maturity Green-e's intent is to
7 adopt LIHI certification as the sole standard in New England and New York. This
8 decision shall be reviewed annually.

9
10 In Ohio:

- 11 • Hydro facilities whose output is equal to or less than 42 megawatts qualify.
12 Starting 1/1/2010, eligible hydro resources for Green-e in Ohio will only
13 include hydro facilities certified by LIHI.

14 In California:

- 15 • Only facilities that are certified as low impact by LIHI are eligible. Green-e
16 considers LIHI certification to be stricter than the 30-MW capacity hydro
17 standard in the California state RPS.

18
19 **2. Solar Electric**

20
21 **3. Biomass:** Solid, liquid and gaseous forms of biomass are eligible including:

- 22 • All woody waste including mill residues;
- 23 • All agricultural crops or waste;
- 24 • All animal and other organic waste;
- 25 • All energy crops; and
- 26 • Landfill gas.

27
28 All regional standards exclude combustion of municipal solid waste.

29 These standards apply to all regions unless noted in the regional standards below.
30

31 The New England, New York, the Mid Atlantic, Texas and Ohio Green-e standards
32 exclude these woody biomass resources:

- 33 • Wood that has been coated with paints, plastics, or formica;
- 34 • Wood that has been treated for preservation with materials containing
35 halogens, chlorine or halide compounds like CCA-treated materials, or
36 arsenic (CCA = chromated copper arsenate);
- 37 • There may be de minimus quantities of qualified wood fuel (<1% of total
38 wood fuel) that can contain the above excluded contaminants.

39
40 The Mid Atlantic Green-e standard also excludes:

- 41 • Herbaceous agricultural waste;
- 42 • Forestry biomass waste other than mill residues.

43
44 The Illinois² Green-e standard excludes:

² The Green-e definition of eligible renewable resources for Illinois is written to be consistent with the Illinois state definition of renewable energy (20 ILCS 687/6-3(f)) which reads:

"Renewable energy resources" includes energy from wind, solar thermal energy, photovoltaic cells and panels, dedicated crops grown for energy production and organic waste biomass, hydropower that does not involve new construction or significant expansion of hydropower dams.

"Renewable energy resources" does not include, however, energy from the incineration, burning or heating of waste wood, tires, garbage, general household, institutional and commercial waste, industrial lunchroom or office waste, landscape waste, or construction or demolition debris.

1
2

- Waste wood from landscape trimming and other landscape waste,
- Railroad ties and construction or demolition debris.

1 The California Green-e standard also includes³:

- 2 • Municipal Solid Waste conversion facilities using a non-combustion thermal
3 process, as long as they meet California Energy Commission requirements for
4 California RPS eligibility.

5
6 **Biomass Emissions:**

7 In New England and the Mid Atlantic:

8 The average weighted NOx emissions from all biomass sources, except landfill gas or
9 digester gas, that contribute to a specific Green-e product sold in New England or
10 the Mid Atlantic shall not exceed:

- 11 • 2.9 lbs./MWh in 2000, 2001, 2002;
12 • 2.63 lbs./MWh in 2003, 2004, 2005; and
13 • 2.25 lbs./MWh in 2006, 2007, 2008.

14
15 In New York:

16 The average weighted NOx emissions from all biomass sources, except landfill gas,
17 that contribute power to a specific Green-e product sold in New York shall not
18 exceed:

- 19 • 2.9 lbs./MWh in 2002, 2003, 2004; 2005;
20 *Standard(s) for subsequent years are adopted here, but will be reviewed based on*
21 *the evolution of state-of-the art control technologies two years before they are to*
22 *go into effect and adjusted if appropriate.*
23 • 2.63 lbs./MWh in 2006, 2007, 2008; and
24 • 2.25 lbs./MWh in 2009, 2010, 2011.

25
26 In New England and New York:

27 The average weighted NOx emissions from landfill gas facilities contributing to a
28 specific Green-e certified product shall not exceed 3.5 lbs./MWh. Landfills not
29 otherwise required to flare are exempted from the Landfill gas NOx emissions cap.

30
31 **Co-firing of Liquid and Gaseous forms of Biomass with Natural Gas:**

32 In New England, New York, the Mid Atlantic, Ohio, Illinois, Michigan and California:

33 Co-firing of liquid and gaseous forms of *eligible* biomass with natural gas either
34 piped directly to a natural gas facility or commingled in a natural gas pipeline is
35 permitted if the following conditions are met:

- 36 • the liquid and gaseous form(s) of eligible biomass is separately metered, and
37 • contracts are in place to allow CRS to verify that the liquid and gaseous
38 form(s) of eligible biomass was converted to electricity.

39
40 Only the amount of energy generated from the liquid and gaseous form(s) of eligible
41 biomass may count towards the 50% renewable criteria. Liquid and gaseous form(s)
42 of eligible biomass are the only renewable resources that can be co fired and still
43 count toward the renewable percentage of a Green-e product. Regional exclusions
44 and specifications are listed below.

45
46 In New England and New York:

47 Co-firing includes units permitted to burn oil no more than 60 days out of the year,
48 and the facility must meet the emissions criteria for landfill gas facilities.

³ The biomass definition in the California Green-e Standard is written to be consistent with the California Renewable Portfolio Standard SB 1078 resource definition.

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4. **Negawatts** In Pennsylvania only, negawatts that meet the guidelines of the Negawatts Program as developed by CRS and the Pennsylvania Advisory Committee may be counted toward the renewable portion of a Green-e product.
 5. **Ocean Based Resources:** Green-e will consider adopting ocean-based resources and will review these technologies as they mature and as practical application reaches near term.
 6. **Fuel Cells Powered by Renewable Resources:** Fuel cells powered by any of the above eligible renewable resources are eligible.

13 **III. New Renewable Resource Content**

14 The new renewable requirement will begin on the later of:

- 15 • The first day of January following the approval of a Green-e Standard; or
- 16 • The first day of January at least 6 months after the opening of a retail electricity market.

17
18 CRS reserves the right to modify the new renewable requirement start date on a state-by-state basis to increase consistency within a region.

19
20
21 Retail electricity offerings or "electricity products" that serve 100% of a customer's load must contain at least the minimum percentage of new renewable energy based on Table 1. Once the state or regional minimum new renewables requirement is met, the balance of the customer's load can be served with any combination of eligible existing renewable energy, system power, or non-renewable resources that meets the emissions criteria in IV below. Green-e has a goal of increasing the new percentage further in at least 5% increments each year. These incremental increases will be approved by the Green-e governing Board in consultation with Regional Advisory Committees.

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30 In Illinois and Michigan: Retail electricity offerings or "electricity products" that serve 100% of a residential customer's load must contain at least 50% new renewable energy based on the product supply mix. Once the 50% minimum new renewables requirement is met, the balance of the customer's load can be served with any combination of eligible existing renewable energy, system power, or non-renewable resources that meets the emissions criteria in IV below. Starting in 2008, any product making a claim to serve 50 – 100% of the customer's load with renewable energy must satisfy that claim with new renewables only.

31 Example Acceptable Products Until 2008:

- 32 1) 50% new renewables, 50% system power/non-renewables -
33 Product Claim: 50% renewable
- 34 2) 50% new renewables, 25% existing renewables, 25% system power/non-renewables -
35 Product Claim: 75% renewable
- 36 3) 50% new renewables, 50% existing renewables -
37 Product Claim: 100% renewable

38 Example Acceptable Products in 2008 and Beyond:

- 39 1) 50% new renewables, 50% system power/non-renewables -
40 Product Claim: 50% renewable
- 41 2) 50% new renewables, 50% existing renewables -
42 Product Claim: 50% renewable

1 3) 100% new renewables
 2 Product Claim: 100% renewable
 3

4 Table 1: New Renewable Requirement Start Date Table
 5

State	2000	2001	2002	2003	2004	2005	2006
California	5%	10%	10%	15%	25%	25%	25%
Connecticut	-	5%	10%	10%	15%	20%	25%
Delaware	-	-	5%	10%	15%	20%	25%
District of Columbia	-	-	5%	10%	15%	20%	25%
Illinois	-	-	-	-	-	50%	50%
Maine	-	5%	10%	10%	15%	20%	25%
Maryland	-	-	5%	10%	15%	20%	25%
Massachusetts	-	5%	10%	10%	15%	20%	25%
Michigan	-	-	-	-	-	50%	50%
New Jersey	-	5%	10%	10%	15%	20%	25%
New York	-	-	10%	10%	15%	20%	25%
Ohio	-	-	-	5%	10%	15%	20%
Rhode Island	-	5%	10%	10%	15%	20%	25%
Pennsylvania	5%	10%	10%	15%	15%	20%	25%
Texas	-	50%	50%	50%	50%	50%	50%
Virginia	-	-	-	-	15%	20%	25%

6
 7 An eligible new renewable generation facility must either be:
 8

- 9 (1) Placed in operation (generating electricity) on or after January 1, 1997;
 10 (2) Repowered on or after January 1, 1997 such that at 80% of the fair market value of the
 11 project derives from new generation equipment installed as part of the repowering;
 12 (3) A separable improvement to or enhancement of an existing operating facility that was
 13 first placed in operation prior to January 1, 1997, such that the proposed incremental
 14 generation is contractually available for sale and metered separate from the existing
 15 generation at the facility; or
 16 (4) A separately metered landfill gas resource that was not being used to generate electricity
 17 prior to January 1, 1997.
 18

19 Any enhancement of fuel source that increases generation at an existing facility, without the
 20 construction of a new or repowered, separately metered generating unit, is not eligible to
 21 participate, with the exception of new landfill gas resources identified in (4) above. An
 22 eligible "new renewable" must qualify as an "eligible renewable resource" as described in
 23 the Green-e Code-of-Conduct. Hydropower facilities may not contribute toward achievement
 24 of the new renewable requirement at this time.
 25

26 In Pennsylvania:

27 "Negawatts" may not be used to meet the Green-e new renewable requirement.
 28

29 In New England and New York: The new renewable generation facility start date is defined
 30 as January 1, 1998.

1
2 In Texas: An eligible new renewable generation facilities are defined as:

- 3
4 (1) Renewable energy generators placed in service on or after September 1, 1999, or
5 (2) A new facility that includes the incremental capacity and associated energy from an
6 existing renewable facility achieved through re-powering activities undertaken on or after
7 September 1, 1999. This is consistent with the TX PUC definition.

8
9 In Illinois and Michigan: The new renewable generation facility start date is defined as
10 January 1, 2002. Eligible new renewable generation can also be sourced from resources
11 built prior to 2002 that meet the following definition:

12
13 (1) Electricity production from a facility constructed for the purpose of selling the output
14 to retail and wholesale customers as part of a voluntary green power option.

15
16 (2) Marketers intending to include new resource generation that came on-line prior to
17 January 1, 2002 must petition the Green-e Program in writing to establish the eligibility
18 of a generation facility.

19
20 In California, Ohio, Illinois and Michigan: LIHI certified low-impact hydro on existing
21 impounds that represents new re-powering or new capacity is eligible for inclusion as a
22 "new" renewable resource, so long as the incremental increase came online after the "new"
23 cutoff date. Other hydropower facilities may not contribute toward achievement of the new
24 renewable requirement at this time.

25
26 **IV. Emissions Criteria for the Non-Renewable Portion of a Green-e Product**

27 The total emissions rate per kWh for SO₂, NO_x, and CO₂ from the non-renewable portion of the
28 eligible product may not exceed the average state or regional power emissions rates. Rates are
29 calculated from EPA EGRID data, unless the regional system administrator, PUC or other
30 authority makes more up to date information available. If system power is comprised of the
31 local distribution utility mix, it is considered the average system mix.

32
33 **V. True up Period for Sales and Delivery of Energy**

34 The content of a Green-e certified product may only include renewable energy and/or TRCs that
35 are generated in the calendar year in which the product is sold, the first three months of the
36 following calendar year, or the last six months of the prior calendar year.

37
38 **VI. Power Content for Non-Renewable Portion of a Green-e Product**

39 The product may not include any specific purchases of nuclear power in the non-renewable
40 portion of the product other than what is contained in any system power purchase.

41
42 **VII. Interaction with Renewable Portfolio Standards, Other Mandated Renewables,
43 and Emission Reduction Credits and Allowances**

44
45 Green-e certified products must be comprised of eligible renewable generation over and above
46 anything required by state or federal RPS requirements. Furthermore, energy and/or TRCs may
47 NOT be used in a Green-e certified electricity product under any of the following circumstances:

- 48
49 (a) the energy and/or TRC is being used simultaneously to meet a local, state, or federal
50 mandate or other legal requirement, or

- 1 (b) the energy and/or TRCs are derived from a renewable facility that has been mandated by a
 2 local, state, or federal government agency or was required under any legal requirement; or
 3 (c) emission reduction credits or emission allowances allocated to or otherwise received by the
 4 renewable generator for the generation output that supports the electricity product have
 5 been sold off separately, or used for compliance with any air quality requirement of the
 6 local, state or federal government.

7
 8 Renewable energy generated in response to any mandatory requirement to construct or
 9 contract for the renewable energy is not eligible to be included as part of a Green-e electricity
 10 product.

11 **VIII. Products that Constitute a Portion of a Retail Offering**

12 Green-e will certify blocks of renewable power. In New England, New York, California, Ohio,
 13 Illinois, Michigan and the Mid Atlantic, the blocks must contain a minimum amount of 150 kWh
 14 per month of 100% new renewable resources on an annual basis. Blocks containing more than
 15 150 kWh/month may include existing renewables for any amount above 150 kWh/month. In
 16 Illinois and Michigan, Starting in 2008 block products must meet or exceed the minimum size
 17 with new renewables only. In Texas, the blocks must contain a minimum amount of 200 kWh
 18 per month on an annual basis, available to commercial customers only. In monopoly
 19 jurisdictions within competitive states, the minimum block size is 100 kWh/month of new
 20 renewables.
 21

22
 23 The block products must be part of an all-requirements electricity offering. Any non-renewable
 24 portion of the electricity offering must meet the same emissions requirements and power
 25 content requirements as all other Green-e blended products (see IV, V above).
 26

27 **IX. Geographic Boundaries for Sourcing Eligible Electricity and Attributes**

28 Green-e generally relies upon power pool boundaries where practical to define the geographic
 29 boundaries for sourcing eligible electricity and attributes sold in an electricity product in a given
 30 region. When power pool boundaries are not clearly defined, state boundaries may also serve
 31 to define the geographic boundary for sourcing eligible electricity and attributes. Electricity sold
 32 to a customer must be generated in or wheeled into the power pool or defined geographic
 33 sourcing boundary of the customer being served. Renewable energy attributes can be
 34 combined with system power to serve green electricity customers. However, the renewable
 35 energy attributes and system power must come from within the power pool or defined
 36 geographic boundary of the customer being served.
 37

38 Table 2: Defined Geographic Sourcing Boundaries and Power Pools for Regional Green-e
 39 Electricity Products:
 40

Customer Location	Generation Location
New England	New England ISO
New York	New York ISO
Mid Atlantic (DE, DC, MD, NJ, PA, VA)	PJM and all of PA, DE, DC, MD, NJ, WV, VA, MI, OH, and IL
Ohio	ECAR (MI, OH, IN, KY, WV, & a portion of PA)
Texas	ERCOT (portions of TX within ERCOT)
California & Pacific Northwest (OR, WA, ID, MT)	WECC (CA, OR, WA, ID, MT, WY, NV, UT, CO, AZ, NM)

Illinois	MAIN and states contiguous to Illinois: IL, MO, WI, IA, IN, MI, KY, and Main portions of MN.
Michigan	ECAR and states contiguous to Michigan: MI, IN, IL, KY, OH, WV, WI, and ECAR portions of PA.

1

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Q.5. Refer to pages 19 and 20 of the Kinloch Testimony, the discussion of a carbon dioxide tax analysis in LG&E and KU's 2005 Integrated Resource Plan ("IRP"). The IRP, which has been docketed in Case No. 2005-00162, shows that, under either a base case scenario or various sensitivities including carbon dioxide taxes of \$10, \$20, and \$40, Trimble County Unit 2 is the lowest cost option at capacity factors of 60 percent or greater while WV Hydro is the lowest cost option at capacity factors of 50 percent or less. Explain any impact these results may have on Mr. Kinloch's position regarding these two capacity alternatives.

Answer:

It is assumed that this question refersto the CO₂ sensitivity analysis that was included as part of the "Analysis of Supply-Side Technology Alternatives" in Volume III of the 2005 IRP. This analysis compares different capacity options using different alternatives by analyzing them at 0% to 100% capacity factors in 10% increments, thus producing 11 results for each of the 27 alternative considered. As a result, a total of 297 results were examined.

W.V. Hydro was modeled to have a maximum capacity factor of 50%. Consequently, it was only possible for this alternative to be considered where the capacity factor was between 0% and 50%, or only 162 of the 297 result points examined. It should be noted that W.V. Hydro was the first place alternative in all 162 results for which it was considered. Likewise, other renewables had capacity factors of 50% or less. As a result, for alternatives with over a 50% capacity

factor, high CO₂ emission technology alternatives were selected by default. It should also be noted that W.V. Hydro was also the lowest cost alternative in all scenarios in its capacity factor range even when CO₂ was not considered.

It must be remembered that this was a screening analysis to select final alternatives. It was not the final analysis. In the final analysis, the total capacity of renewable alternatives such as W.V. Hydro are reduced from a nameplate rating down to an average capacity available to account for the fact that they are not available at all times.

The differences in capacity factors were included in the Company's Net Present Value analysis, which were run as the nine alternatives in the case. These are the basis of the analysis contained in my Exhibit DHBK-7. Thus my analysis of CO₂ costs is consistent with the screening results contained in the Companies' 2005 IRP.