

The only data in the FEIS and the IDCEO that are directly comparable are the population projections for the 6 counties directly around the ESP site for the years 2000, 2010, and 2020. See FEIS Table 2-8.¹ These data are presented below:

County	2000 (estimated)	2010 (projected)	2020 (projected)
Champaign			
• FEIS	179,669	194,953	206,417
• IDCEO	179,981	194,234	209,833
• Delta (Total)	+ 312	- 519	+ 3,416
• Delta (%)	+ 0.2%	- 0.3%	+ 1.7%
DeWitt			
• FEIS	16,798	16,018	15,635
• IDCEO	16,829	17,885	18,914
• Delta (Total)	31	+ 1,867	+ 3,279
• Delta (%)	+ 0.2%	+ 11.7%	+ 21.0%
Logan			
• FEIS	31,183	33,449	33,965
• IDCEO	31,235	31,353	32,164
• Delta (Total)	+ 52	- 2,096	- 1,801
• Delta (%)	+ 0.2%	- 6.3%	- 5.3%
Macon			
• FEIS	114,706	117,906	118,505
• IDCEO	114,906	111,957	115,797
• Delta (Total)	+ 200	- 5,949	- 2,708
• Delta (%)	+ 0.2%	- 5.0%	- 2.3%
McLean			
• FEIS	150,433	156,685	165,592
• IDCEO	150,696	168,611	187,086
• Delta (Total)	+ 263	+11,926	+21,494
• Delta (%)	+ 0.2%	+ 7.6%	+ 13.0%
Piatt			
• FEIS	16,365	16,636	17,270
• IDCEO	16,396	17,023	17,748
• Delta (Total)	+ 31	+ 387	+ 478
• Delta (%)	+ 0.2%	+ 2.3%	+ 2.8%
Six County Totals			
• FEIS	506,154	535,647	557,384
• IDCEO	510,043	541,263	581,542
• Delta (Total)	+ 3,889	+ 5,616	+24,158
• Delta (%)	+ 0.2%	+ 1.0%	+ 4.3%

These data show the following:

¹ FEIS Table 2-6, which is cited by the Board, provides population estimates for concentric rings,

- For 2000, the IDCEO numbers are greater than the numbers in the FEIS by 0.2%.
- For 2010, the projections in the FEIS are greater for half of the counties, and the IDCEO projections are greater in the other half. The overall totals are within 1% (with the IDCEO projections being the higher).
- For 2020, the FEIS projections are greater in two counties, and the IDCEO projections are greater in four counties. The overall totals are within 5% (with the IDCEO projections being the higher).
- The percentage differences are greatest for DeWitt County (the location of the ESP site), with the IDCEO projecting a 21% greater population for 2020. However, DeWitt County has the smallest population of the six counties of interest, and the difference in the total population projections is small (about 3,000 people). Furthermore, there is only a 12.6% difference (about 2,000 people) between the 2000 FEIS estimate and the 2020 IDCEO projection.

In summary, there are no systematic biases in the FEIS projections relative to the IDCEO projections. However, the IDCEO projections tend to be somewhat higher. Overall, the differences in the projections are not significant, given the length of time involved.

From a safety perspective, the only evaluations that pertain to population involve population densities, Low Population Zone (LPZ) and population center calculations, and evacuation time estimates. As discussed below, the results of these evaluations would not be adversely affected if the IDCEO projections were to be used.

- Population Density. Even with the higher population projections of the IDCEO, DeWitt County would still have a low population density. For example, as shown in the Site Safety Analysis Report (SSAR), Figure 2.1-4, the area within 10 miles of the ESP site (which roughly corresponds to DeWitt County) generally has population densities less than 100 persons per square mile, and only 2 of 96 sectors have densities greater than 200 persons per square mile. As shown in SSAR Figure 2.1-5, similar

which are not directly comparable to the county-wide data provided by the IDCEO. The county data are in FEIS Table 2-8.

trends appear in the 10 to 20 miles ring around the site, with only 2 of 16 sectors having densities greater than 400 persons per square mile. Therefore, even if the population projections in the FEIS were increased by several fold, the population densities around the ESP site would still be substantially less than 500 people per square mile out to 20 miles, which is the acceptance criterion in Regulatory Guide 4.7 and used in the Safety Evaluation Report (SER), p. 2-10.

- LPZ. The LPZ is a circle with a radius of 2.5 miles (4 km) from the center of the ESP site. (SER, p. 2-9). As provided in 10 CFR § 100.3, there must be “a reasonable probability that appropriate protective measures could be taken” on behalf of the residents in the LPZ in the event of a serious accident. As shown in SSAR Figure 2.1-4, the population densities within the LPZ are extremely low (less than 20 persons per square in all but one sector). Given the ability to evacuate the population out to the 10-mile emergency planning zone (EPZ), the LPZ is adequate based upon the criteria in § 100.3. (SER, p. 2-10). Furthermore, given the extremely low population densities in the LPZ, this conclusion remains valid even if the population in the LPZ were increased to account for the somewhat greater population projection by the IDCEO for DeWitt County as a whole (e.g., use of the IDCEO projections would add less than a handful of persons per square mile in the LPZ, which obviously would not affect the ability to evacuate the residents within the LPZ).
- Population Center. Even with the higher population projections of the IDCEO, the entire county of DeWitt would still have a population substantially less than 25,000. The population center (i.e., 25,000 people) would still be located outside of DeWitt County in Decatur (SER pp. 2-9 and 2-10), which is also outside the 10-mile EPZ.

- Evacuation Time Estimate. Exelon and the NRC Staff determined that the 1993 evacuation time estimate (ETE) for Clinton Power Station (CPS) remains valid and applicable to the ESP site when accounting for the 2000 Census data. (Emergency Plan, p. 2.3-5; SER, pp. 13-5 and 13-13 to 13-14). Per RS-002, p. 13.3-3, and SER, p. 13-12, an ESP application should contain a “preliminary analysis” of evacuation times, which “should include the latest population census numbers.” Therefore, for an ESP, it is not necessary to submit an ETE that is based upon population projections into the future. As a result, the ETE used for the Clinton ESP is not affected by the population projections by the IDCEO.²

From an environmental perspective, the evaluations that pertain to population involve risks of accidents and socioeconomic impacts (primarily roads and housing). As discussed below, the results of these evaluations would not be adversely affected if the IDCEO projections were to be used.

- Accident Risks. The FEIS, p. 5-77, concludes that the risk of accidents is SMALL. The FEIS, pp. 5-73 to 5-75, shows that the population risks from severe accidents from an ABWR or AP1000 at the ESP site would be orders of magnitude less than the risks at existing plants, and would be well below the Commission’s safety goals. In contrast, the differences in the population projections are small (i.e., the difference in the projections of the region’s population is less than 5%). Given the very small risk

² The NRC Staff requested Exelon to provide a population extrapolation for the next 20 years and a discussion of the impact on the ETE. In response, Exelon stated that the extrapolated population results do not represent a significant change from those in the 1993 ETE and therefore the expected impacts would be minimal. (SER, p. 13-3). Given the sparse population of DeWitt County, and the slight increase (about 2,000 people) projected by IDCEO in 2020, it is reasonable to conclude that the ETE would not be significantly impacted if the IDCEO projections were to be used.

from accidents, the relatively small difference in population projections would not affect the overall conclusion that the risk from accidents is SMALL.

- Roads. Roads in the vicinity of the ESP site typically have a low volume of traffic and have sufficient capacity to serve future traffic during construction. (ER, pp. 2.5-9 and 4.4-5). Route 54 and Route 10 (the roads near the ESP site) each typically handle 2,750 or fewer vehicles per day, whereas a typical rural 2-lane highway handles 5,000 vehicles per day. (ER, pp. 4.1-2 and 4.4-5) Therefore, even assuming a 12% increase in traffic due to population increases projected by the IDCEO for DeWitt County and accounting for the fact that construction could add 1,640 vehicles per road per day (ER, p. 4.1-2), the total vehicles per day would still be less than 5,000 on each route. Therefore, these routes could still handle the traffic. This is substantiated by the experience with construction of CPS (which involved 9,000 workers), during which there were periods of congestion lasting only 10 to 15 minutes during shift changes. (ER, p. 4.4-5). The FEIS, pp. 4-29 to 4-31 reaches similar conclusions.
- Housing. The 2000 Census indicates that there are 19,000 vacant, year round housing units within the region, and over 13,000 vacant units in the six counties around the ESP site. (ER, p. 4.4-4; FEIS, p. 4-32; Tr. 800). Furthermore, it is reasonable to expect that an increase in the permanent population would also lead to construction of new houses. As a result, there should be sufficient housing to accommodate an increase in population, if it were to materialize as projected by the IDCEO. Furthermore, as demonstrated in the table provided above, both the FEIS and IDCEO show that the great majority of the increase in total population would occur in the counties with urban areas (i.e., Champaign, Macon, and McLean counties), with

relatively small increases in the total population in the rural counties of DeWitt, Logan and Piatt. Therefore, it is reasonable to expect that the housing impact in the rural counties during construction would continue to be SMALL or MODERATE, as estimated in the FEIS, p. 4-33. This is discussed in more detail in the next section.

In summary, the differences between the population projections in the FEIS and by the IDCEO are not material. Even if the IDCEO projections were to be used, none of the results of the safety evaluations would be affected. Furthermore, the environmental impacts addressed in the FEIS would not increase.

II. Availability of Skilled Workers

FEIS Table 4-1 notes that the impact of construction on roads and housing could be SMALL to MODERATE. In response, the Board's Order has the following question:

As recently noted by NRC Chairman Klein, the nuclear industry is confronted with a lack of the skilled labor required to construct and operate new reactors. The Staff has indicated that it expects that the majority of the workforce needs can be satisfied by persons residing in the region surrounding the ESP site, or from close metropolitan areas. The Staff has acknowledged that it did not evaluate the need for specially qualified and certified construction workers when it made its findings regarding the availability of a construction workforce in the surrounding area and as a result chose to estimate the impact as SMALL to MODERATE on the affected environment. In light of Chairman Klein's comments regarding workforce shortages, even without new plants under construction, does the Staff believe a larger impact characterization would be more appropriate, why or why not? (Citations omitted)

Order at 2. Chairman Klein's remarks pertained to the nuclear industry in general, including design, construction, manufacturing, and operation, and did not address construction specifically. Furthermore, his statements did not address the distinction between general construction workers and skilled nuclear workers. In any event, as shown below, the ER and FEIS account for the possibility that some workers (including

skilled workers) may relocate to the area around the ESP site, and therefore there is no need to revise the impact characterization to reflect Chairman Klein's comments.

The great majority of the construction workforce will be general construction workers and would not need prior nuclear experience. The region around the ESP site has 38,485 construction workers. (ER, p. 4.4-2; FEIS, p. 4-26). This number is more than sufficient to supply the general needs for construction, given the length of construction and size of the workforce. For example, plant construction would take up to five years, and the estimated need for construction workers during that period will peak at 3,150. (FEIS, p. 4-25; SSAR Table 1.4-1; ER, p. 4.4-3). The workforce will steadily decline as construction nears completion, decreasing to 580 (the permanent operating workforce). (ER, p. 4.4-3; FEIS, p. 5-31). Given the large availability of construction workers in the region relative to the size of the workforce, it is reasonable to expect that most construction workers will already be living in the region and will commute to the ESP site from their existing homes. (ER, pp. 4.4-4 and 4.6-17; FEIS, pp. 4-25 and 4-26).

The impact on roads is independent of whether workers would be drawn from the region or would move into the region. Either in case, the same number of workers would be using the same roads. Therefore, the only remaining issue is housing impacts.

It is not unusual for construction workers to commute fairly long distances, e.g., within a 50 mile radius. (FEIS, pp. 4-26, 4-32). Therefore, in determining the impact of construction workers on housing, the appropriate area for evaluation is the region around the ESP site (i.e., within a 50 mile radius of the site).

The total population within the 50-mile region is 764,366 and is expected to grow to 827,176 by 2020 and to 942,556 by 2060. (FEIS, Table 2-6 and p. 4-24). The NRC

Staff and Exelon estimate that the peak construction workforce would be 3,150. (ER, p. 4.4-2; FEIS, p. 4-24). Even if all of the construction workers were to come from outside the region, they would constitute a very small fraction of the total population of the region and a small fraction of the expected population growth within the region.

Exelon estimates that a small percent of the total construction workforce will need prior nuclear experience or nuclear qualifications (such as ASME welder qualifications or personnel with nuclear power plant engineering experience). Even if it is assumed that all of these skilled workers moved from outside to inside the region, historical evidence indicates that such an influx of workers would not have a significant impact on housing. Specifically, during construction of CPS, 9,000 workers were needed. Most of those workers came from within the region, but a significant number came from outside the region. However, despite this significant import of workers, housing near CPS was not adversely impacted. (ER, pp. 4.4-2 to 4.4-3; FEIS, p. 4-26; Tr. 799-800, 858-60).

Furthermore, Exelon and the NRC Staff accounted for the impact on housing from the movement of construction workers into the region. These evaluations are sufficiently broad to encompass the import of skilled construction workers from outside the region. In particular, the ER and FEIS include the following information:

- A small number of workers may originate outside the region and commute to the site on a weekly basis, sharing accommodations. (ER, p. 4.4-4 and 4.6-17; FEIS, p. 4-32).
- A small percentage of the construction workforce may opt to relocate to the vicinity. (ER pp. 4.1-2 and 4.4-4; FEIS, pp. 4-25 and 4-32 and 4-33).
- Workers moving into the region would gravitate to the larger urban areas, where more housing is available. (Tr. 757-58). Even if 20% of the workforce (650 workers) were to relocate to DeWitt County, it would represent only a 3.9% increase in total population. (FEIS, p. 4-25).

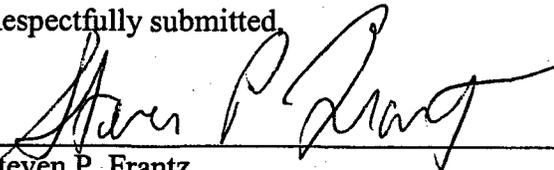
- There are 19,000 vacant housing units in the region, hundreds of properties listed for rent and sale in local newspapers, and 74 vacant housing units in the vicinity of the ESP site. (ER, p. 4.4-4 and Tables 2.5-12 and 2.5-13; FEIS, p. 4-32).
- There will be sufficient housing to meet the demands of construction workers moving into the region. If a higher than expected number of workers were to relocate to the small counties of DeWitt, Logan, and Piatt, there could be a shortage of rental properties, with MODERATE impacts. (FEIS, pp. 4-32 and 4-33).
- Mitigation of any impacts would be market driven. (FEIS. p. 4-33; Tr. 868).

In summary, the ER and FEIS assumed that some workers would relocate from outside of the region to inside the region or the vicinity of the plant. Given the vacancies in the region and vicinity, the FEIS properly categorizes the housing impacts as SMALL, with a possibility of MODERATE impacts if larger than expected numbers of workers were to attempt to relocate to DeWitt, Logan, or Piatt Counties. Furthermore, even if the impacts were assumed to increase to LARGE, the impacts would be temporary and the mitigation would be the same (i.e., market-driven mitigation). Therefore, none of the overall conclusions in the ER or FEIS would be affected.

III. Conclusions

In summary, neither the IDCEO projections nor Chairman Klein's comments affect any of the conclusions in the Application, the SER, or the FEIS.

Respectfully submitted,



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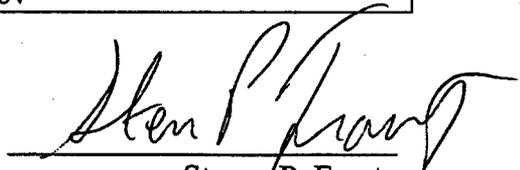
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	Docket No. 52-007
EXELON GENERATION COMPANY, LLC)	ASLBP No. 04-821-01-ESP
(Early Site Permit for the Clinton ESP Site))	December 4, 2006

CERTIFICATE OF SERVICE

I hereby certify that copies of Exelon's Brief in Response to Board's Order of November 17, 2006 in the above captioned proceeding have been served as shown below by deposit in the United States mail, first class, this 4th day of December, 2006. Additional service has also been made this same day by electronic mail as shown below.

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