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In re:
Application for Certification for the:
Alamitos Energy Center Docket No. 13-AFC-01

INTERVENOR LOS CERRITOS WETLANDS LAND TRUST
Part Two Opening Testimony

Sections 1 and 2: Testimony of Bill Powers on behalf of the Trust
Sections 3, 4 and 5: Testimony of Joe Geever on behalf of the Trust

December 16, 2016

This document comprises the testimony of the Los Cerritos Wetlands Land Trust (the Trust) in regard to Part 2 of the Final Staff Assessment (FSA). We very much appreciate the Committee's careful attention and consideration of the Trust's concerns with the substance of the FSA, and the public procedure to review the FSA.

We continue to protest the bifurcation of the FSA and Evidentiary Hearings into Part One and Part Two. As pointed out in earlier Trust communications, finalizing the Part One subject areas in the absence of an air quality degradation analysis has made it extremely difficult and duplicative to thoroughly review and comment on the impacts of air pollution on several subject areas in Part One. Conversely, the bifurcation of the FSA has made it extremely difficult to review several subject areas to ensure they adequately account for cumulative impacts on air quality degradation. Nonetheless, our Testimony below and preparation for the Evidentiary Hearing will include the relevant Part One subject areas. **We hereby request a determination by the Committee to re-open the subject areas of Biological Resources, Water Resources and Traffic for evidence and written testimony.**

The FSA must thoroughly analyze the adverse impacts from the proposed project, including cumulative impacts and the cumulatively considerable contribution of the proposed project to those significant impacts. Further, the Commission must determine the proposed project is consistent with all applicable LORS – including laws, regulations and standards enforced by the California Public Utilities Commission (CPUC).

These mandates require the Commission to do a more thorough review of alternatives, and identification of a superior alternative, that will minimize the adverse impacts.

1. Air Quality – GHG

a. Baseline and Non-Attainment -- GHG

The FSA Part 2 Air Quality Appendix AIR-1 addresses the Greenhouse Gas (GHG) emissions implications of the proposed project. The combined cycle block is projected to emit up to 1,101,194 metric tons (1,211,313 tons) per year of GHG.[1]

The AEC combined cycle block is projected to emit substantially more GHGs than the 894,435 tons of GHG emitted by the entire fleet of aging merchant coastal steam boiler plants in the LA Basin in 2014.[2] The reason for the low GHG emissions from the existing merchant steam plants in the LA Basin is that they have already been

[1] FSA Part 2, p. 4.1-180.
[2] SCE Application A.14-11-012, Powers Engineering Reply Brief, July 1, 2015, (attached).

largely displaced by: 1) the large capacity of existing combined cycle plants in Southern California and nearby regions (Central Valley, Southern Nevada, Arizona, Baja California), and 2) renewable energy resources.

The FSA Part 2 alleges that the operation of AEC combined cycle block will reduce the use of higher GHG-emitting resources somewhere in the WECC,[3] as if this would excuse the emission of 1,211,313 tons per year of GHGs from the AEC combined cycle block. The FSA Part 2 provides no information to support this claim, and provides no information to support why a California state agency would identify unspecified reductions in fossil generation by non-California power providers located somewhere in the Western U.S. as a primary benefit of the proposed project. This is not a credible justification for certifying the AEC combined cycle block.

The conundrum presented by the 640 MW combined cycle component of this project is that it is primarily justified as necessary for California to increase renewable energy usage to achieve a 40 percent GHG reduction target by 2030 and an 80 percent GHG reduction target by 2050. The AEC combined cycle block will serve as an impediment to these GHG reduction targets. The AEC combined cycle block alone increases GHG emissions from power generation in the LA Basin by 35 percent compared to the 2014 GHG emissions from the entire merchant LA Basin fleet of coastal steam units and will continue to do so for at least 25 to 30 years.[4]

The CPUC's 2012 Long-Term Procurement Proceeding (LTPP) did not authorize any combined cycle capacity in the LA Basin. It authorized "gas-fired generation."[5] To minimize GHGs, the obvious form of gas-fired generation that meets the reliability need while minimizing GHG emissions, and conventional air pollutant emissions, is low usage simple cycle turbine generation employed during peak demand periods to assure grid reliability.

In addition, the proposed AEC combined cycle block does not meet one of the project objectives defined in the FSA. A primary project objective of the proposed AEC is to provide fast starting and stopping, flexible, controllable, generation with the ability to ramp up and down through a wide range of electrical output to allow the efficient integration of renewable energy sources into the electrical grid.[6] The FSA claims that the entire proposed 1,040 MW AEC is a "fast start" facility (FSA p. 3-1), but nowhere in the document does the CEC define the term "fast start." In the power industry, the term "fast start" generally means the gas turbine can reach full power in 10 minutes or less. This makes sense in the context of grid reliability, as CAISO and SCE will have less than 30 minutes to make adjustments to respond to the 1-in-10 year grid reliability planning

[3] FSA Part 2, p. 4.1-172. "AEC would improve the efficiency of existing system resources and contribute to a reduction of system wide GHG emissions from the Western U.S. electricity sector . . ."

[4] 1,211,313 tpy ÷ 894,435 tpy = 1.35 (35 percent increase in GHG).

[5] TN 214149: Powers Opening Testimony, October 21, 2016, Exhibit 4: CPUC D.14-03-004 (2012 LTPP Track 4 final decision).

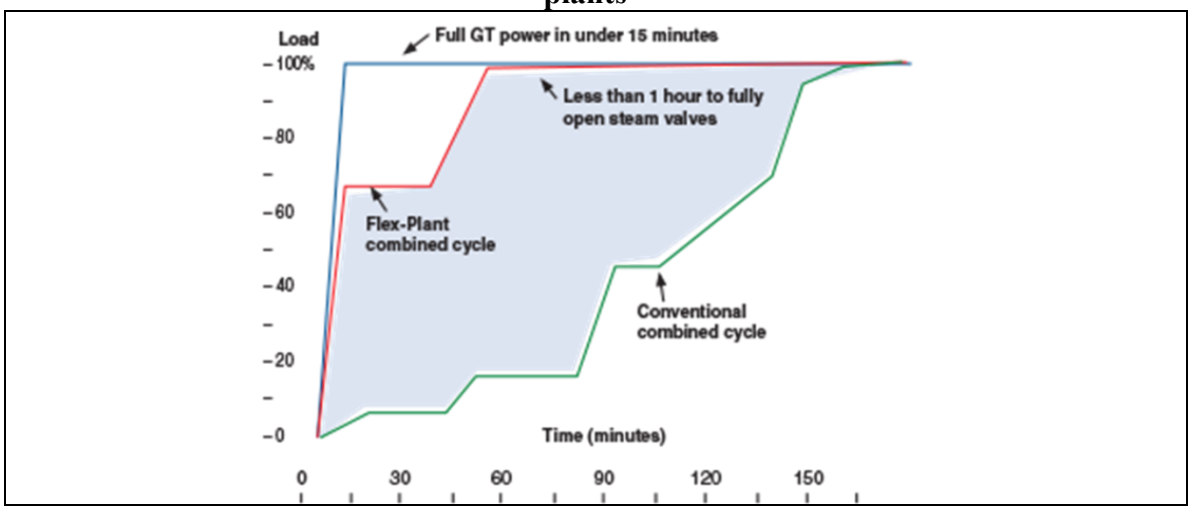
[6] FSA p. 1-4.

condition,[7] the loss of the 500 kV Southwest Powerlink transmission line followed by loss of the 500 kV Sunrise Powerlink, that is the basis for the CPUC authorization of 640 MW of gas-fired generation capacity at AEC in D.15-11-041.[8]

However, the 640 MW combined cycle component of the AEC does not meet the "less than 30 minutes" timeline to full power that defines the term fast start as used by the CPUC and the CAISO. The fastest start combined cycle configuration available on the market at this time is the Siemens combined cycle "Flex-Plant™" technology in use at the 550 MW El Segundo Energy Center that is owned by NRG and became operational in 2013.[9] This combined cycle technology can provide about 55 percent of its rated capacity in 10 minutes, and requires approximately one hour to reach its full 550 MW rating.[10]

The Siemens Flex-Plant™ combined cycle technology is specifically designed to start as fast as possible, much more quickly than conventional combined cycle configurations, as shown in Figure 1. The GE Frame 7A.05 combined cycle technology proposed by AES for use in the AEC combined cycle block is slower start technology than the Siemens Flex-Plant™ combined cycle technology at El Segundo. The GE Frame 7A.05 is conventional combined cycle technology. As shown in Figure 1, conventional combined cycle technology provides little power at 10 minutes or 30 minutes into start-up, and takes 2-3 hours to reach full power.

Figure 1. Start-up timelines of Flex-Plant™ and conventional combined cycle plants[11]



[7] TN 214149: Powers Opening Testimony, October 21, 2016, Exhibit 3: 2012 LTPP Track 4 Scoping Memo, May 21, 2013, p. 5, footnote 11. "Fast demand response programs in this context are programs that respond to dispatch instructions within 30 minutes or less, including notification time to customers."

[8] Ibid, p. 3, footnote 3.

[9] Gas Turbine World, *El Segundo combined cycle offers 300 MW of peaking in 10 minutes*, September-October 2013, Volume 43 No. 5, pp. 12-16 (attached): http://www.gasturbineworld.com/el-segungo.html

[10] Ibid.

[11] Ibid.

A conventional combined cycle unit produces less than 10 percent of its rated output at 30 minutes, less than 20 percent at 60 minutes, and requires over two hours to reach full power. The GE Frame 7A.05 combined cycle configuration cannot be considered a fast start technology under the definition used by the CPUC and CAISO. The GE Frame 7A.05 does not meet a primary project defined in the FSA for the AEC. It is not fast start technology. In contrast, the GE LMS100 is designed to reach full power in 10 minutes are less and meets the CPUC and CAISO definition of a fast start resource.

The CPUC approved 640 MW of gas-fired generation at Alamitos in November 2015, and 100 MW of battery storage. The FSA Part 2 identifies battery storage as the ultimate substitute for gas-fired generation, though indicates battery storage is not yet available in sufficient quantity to eliminate new gas-fired generation in the short term:[12]

> Natural gas-fired power plants are currently the only type of new facility that can provide these "ancillary" services in the quantities needed now and in the near future. . . While demand-side resources and storage may ultimately provide significant quantities of these services, only pumped hydro storage facilities are currently capable of doing so on a large scale.

The FSA Part 2 assumption that energy storage is not available on a large scale at this time is incorrect. SCE was authorized by the CPUC to contract with AES for 100 MW of battery storage at Alamitos in November 2015. Since that time, as noted in FSA Part 1 opening testimony, AES has applied with the City of Long Beach to install an additional 200 MW of battery storage at Alamitos.[13]

The CEC's most recent published usage rates for California combined cycle and simple cycle units demonstrates that, on average, simple cycle units operate about one-tenth the hours operated by combined cycles on an annual basis.[14] The heat rate of the GE LMS100, the turbine that would be used to provide the 400 MW of simple cycle capacity at AEC, is about 40 percent higher than the heat rate of the GE Frame 7F.05 combined cycle units that would provide the 640 MW of combined cycle capacity at AEC.[15]

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[12] FSA Part 2 at 4.1-188.

[13] TN 214149: Powers Opening Testimony, October 21, 2016, p. 5.

[14] CEC, *Staff Paper - Thermal Efficiency of Gas-Fired Generation in California: 2015 Update*, March 2016, Table 3, p. 4 (attached). Combined cycle capacity factor, 2014 = 0.55. Simple cycle capacity factor, 2014 = 0.059. Simple cycle capacity factor, 2014 = 0.059. Average capacity factor of simple cycle as percentage of average capacity of combined cycle: 0.059 ÷ 0.55 = 0.107 (~10 percent).

[15] FSA, p. 5.3-5. Combined cycle GE Frame 7F.05 thermal efficiency = 60.3 percent. Simple cycle LMS100 thermal efficiency = 44.1 percent. Therefore, heat rate of LMS100 is approximately 37 percent greater than Frame 7F.05: 60.3% ÷ 44.1% = 1.37 (37% higher). Relative simple cycle usage rate × relative simple cycle heat rate = relative simple cycle emissions rate compared to combined cycle = 0.10 × 1.37 = 0.137 (~14 percent).

The conventional air pollutant emissions and GHGs from 640 MW of simple cycle turbines at AEC would be less than 15 percent the emissions of the combined cycle power block, due to the much lower usage rate of the simple cycle turbines.[16] In fact, the gas-fired generation capacity authorized at Alamitos by the CPUC, 640 MW, could be almost entirely substituted with the 400 MW of LMS100s and 200 MW of additional battery storage AES seeks to build at Alamitos. This combination would result in conventional air pollutant and GHG emissions less than one-tenth the emissions projected for the 640 MW combined cycle block.[17] All project objectives defined in the FSA would be fully achieved with this approach with one-tenth the conventional air pollution and GHGs that would otherwise be emitted by the combined cycle block.

As noted below, localized fugitive and stack PM10 deposition cannot be mitigated by purchasing generic PM10 offsets located anywhere in the SCAQMD. This localized deposition is an unmitigatable impact on the Los Cerritos Wetlands. This unmitigatable air impact would be largely eliminated by substituting 400 MW of simple cycle turbines and 200 MW of battery storage for the 640 MW combined cycle block. This substitution would also eliminate 90 percent of the GHG emissions associated with the operation of the combined cycle block while achieving all project objectives defined in the FSA.

The CPUC approved 100 MW of transmission-connected, 100 percent reliable battery storage in response to November 2014 application by SCE to meet its 2012 LTPP need authorization.[18,19] However, the CPUC also approved 163.6 MW of behind-the-meter energy storage with an assumed reliability of 0 percent.[20] The behind-the-meter energy storage contracts in SCE application A.14-11-012, approved by the CPUC in D.15-11-041, exceed SCE's behind-the-meter energy storage authorization in D.13-10-040 by approximately 80 MW (163.6 MW versus 85 MW authorized). According to the CPUC, for grid reliability planning purposes, this behind-the-meter energy storage has no grid reliability value.

The 100 MW of transmission-connected energy storage approved by the CPUC will be developed by AES at Alamitos. However, SCE is supposed to have 310 MW of transmission-connected ES under contract by 2020.[21] There is no explanation provided in the CPUC's decision approving the SCE contracts (D.15-11-041) why it authorized SCE to over-procure behind-the-meter energy storage, which the CPUC

0.14 × (400 MW/600 MW) = 0.093 (9.3 percent).

[16] Relative simple cycle usage rate × relative simple cycle heat rate = relative simple cycle emissions rate compared to combined cycle = 0.10 × 1.4 = 0.14 (14 percent).

[17] 0.14 × (400 MW/600 MW) = 0.093 (9.3 percent).

[18] CPUC, D.13-10-040, October 2013 (attached), p. 15.

[19] CPUC, 2014 LTPP Planning Assumptions, June 2014 (attached), p. 19.

[20] Ibid, p. 19.

[21] CPUC, D.13-10-040, October 2013 (attached), p. 15.

assumes has no reliability benefit, and under-procure transmission-connected energy storage that is assumed by the CPUC to be 100 percent reliable.

AES has submitted a draft negative declaration to the City of Long Beach to add 300 MW of transmission-connected energy storage at Alamitos in three 100 MW phases.[22] According to AES, the first 100 MW phase, already approved by the CPUC in its November 2015 decision (D.15-11-041), would be completed in 2020. The second 100 MW phase would be completed in 2021 or early 2022, and the third 100 MW phase would be completed in 2023.

Substituting 200 MW of transmission-connected energy storage at Alamitos for 200 MW of combined cycle capacity solves two deficiencies in SCE's LA Basin portfolio while fully meeting the AEC project objectives defined in the FSA: 1) the substitution would allow SCE to largely meet its 310 MW target defined in D.13-10-040 for transmission-connected energy storage under contract by 2020, and 2) it eliminates the air pollutant and GHG emissions that would otherwise be emitted from 200 MW of high usage combined cycle capacity at AEC.

The air quality impacts of the AEC are minimized by eliminating the combined cycle component of AEC project. The AEC grid reliability project objective can be met with the 400 MW of LMS100 turbines and 200 MW of transmission-connected battery storage that AES has applied to build at the Alamitos site.

However, the Commission is focused primarily on the certification of high usage, slow response combined cycle gas turbine capacity, not only at AEC but also at Huntington Beach. The Commission is poised to approve a project similar to AEC in Huntington Beach that will also exacerbate local air quality and regional GHG emission challenges. Similar to the AEC facility proposed at Alamitos, the capacity of the Huntington Beach Energy Center analyzed by the CEC, 844 MW,[23] is substantially greater than the 644 MW of gas-fired generation approved by the CPUC for the site in the LTPP process to assure grid reliability. The certification by the CEC of excessive amounts of combined cycle gas-fired generation at Alamitos and Huntington Beach, with no consideration given in either case to the state's overarching energy goal of rapidly reducing GHG emissions, is contrary to state laws, regulations and standards intended to rapidly reduce GHG emissions in California.

b. Cumulatively Considerable – GHG

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[22] TN 214149: Powers Opening Testimony Part 1,, Exhibit 9, p. 2-7.

[23] Huntington Beach Energy Center AFC, p. 1-2, *available at* https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=12-AFC-02C, see also HBEP FSA Part 2 (attached). "Construction would commence in two phases with the first phase consisting of a natural gas-fired, combined-cycle, air-cooled, 644-MW electrical generating facility. After the first phase combined-cycle power block is operational, phase two construction would begin to add two 100-MW simple-cycle gas turbines (SCGT). The second phase: two LMS-100 PB combustion turbine generators, are currently not under a Power Purchase Agreement (PPA) with SCE."

The FSA makes unfounded assumptions and fails to document laws mandating reduction of GHG emissions, and instead relies on after-the-fact mitigation.

The Commission is reviewing an application to construct a 1,040 MW gas-fired facility at Alamitos. Nonetheless, FSA Part 2 argues:[24] "*It is not expected that developers of new capacity, such as the developer of AEC, would bring a project to completion without a contract*." This is an unnecessary and unsupported assumption. The Commission is considering an application for a 1,040MW facility, and the reasonable assumption is that the Applicant plans to build a facility of that capacity.

Further, the Commission and Applicant rely on amendments to the Warren-Alquist Act in 1999 that alleviated the requirement for this Commission to find a "need" for new power plants.[25] The Commission should not be distracted by this "red herring" argument – it is irrelevant. The "need" for the facility has already been considered by the CPUC, and the CPUC limited the capacity of gas-fired generation at the site to enforce state laws to reduce GHG emissions. The narrow consideration of amendments to the Warren-Alquist Act does not alleviate the Commission's duty to ensure licenses for new power plants are consistent with other state laws and regulations as they have been applied to this site.

Further, much has changed in the regulation of the energy industry since those 1999 amendments. The Energy Commission's "LORS" regulations require this licensing decision to be consistent the state laws and regulations adopted since 1999.

After California's initial foray into electricity deregulation proved disastrous – with rolling blackouts, spiking spot market prices, and utility bankruptcies in 2000 and 2001 – the State retrenched, partially reregulating the industry in a way that provided yet another new role for the CPUC. In 2002, the Legislature enacted and the Governor signed Assembly Bill 57, which limited the amount of power that utilities can purchase on the spot market and put the CPUC in the business of overseeing long-term power procurement plans.[26] That same year, California established its first RPS and put the CPUC in charge of ensuring that electric utilities implement these policy directives through their long-term procurement plans.[27] The CPUC, working with this Energy Commission, has since issued two Energy Action Plans (2003 and 2005), and an Energy Action Plan Update (2008), establishing a so-called "Loading Order" which prioritizes the acquisition of new energy from conservation (efficiency and demand response), renewable resources, and

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[24] FSA Part 2 at 4.1-191
[25] TN 214738, Applicant Reply Brief, at p. 15
[26] S.B. 779, Ch. 886 (1998), *available at* http://www.leginfo.ca.gov/pub/97-98/bill/sen/sb_0751-0800/sb_779_bill_19980928_chaptered.html.
[27] S.B. 1078, Ch. 516 (2002), *available at* http://www.leginfo.ca.gov/pub/01-02/bill/sen/sb_1051-1100/sb_1078_bill_20020912_chaptered.html.

distributed generation before the construction of new natural gas capacity.[28]

The CPUC's approval of long-term procurement plans and power purchase agreements between utilities and merchant generators in accordance with those plans must be consistent with these Loading Order priorities, which in turn reflect California's climate policy objectives. AB 32 (2006), as strengthened with passage of SB 32 (2016), sets ambitious state goals for the reduction of carbon emissions. In addition, Senate Bill 1368, signed into law at the same time as AB 32, requires the PUC and CARB to establish greenhouse gas emission performance standards for all base-load generation.[29] The CPUC necessarily must take these goals and standards into consideration in making decisions to approve utility procurement plans and power purchase agreements – and consequently this Commission must take into consideration the CPUC's enforcement of State laws, regulations and standards to ensure the license is consistent with the PUC decision.

In sum, the CPUC's role today stretches far beyond its traditional, limited responsibility for protecting the public from monopoly rents. The CPUC works with myriad other agencies and market actors to coordinate long-term energy planning and to implement California's climate policy. Not only is such forward planning "back," as the Public Policy Institute of California has explained, but its orientation has been greatly expanded to cover much more than consumer rates:

> Historically, planning was narrowly focused on minimizing the cost of meeting consumers' expected needs, without specifying which energy sources should be used. Consistent with the state's new policy goals, planning now focuses on the development of a broader portfolio of resources, to encourage the development of generation powered by resources and load reductions through conservation and demand response. . . . **This new approach also recognizes that some important goals are not reflected in market prices**, such as environmental and public health benefits of renewable resources and demand-side efforts.[30]

But the FSA Part 2 relies on after-the-fact mitigation in a way that undermines state laws and policies to <u>reduce</u> GHG emissions in the first place.

The FSA Part 2, Appendix AIR-1 assumes the mitigation market will eventually "ratchet down" and encourage participants to reduce GHG emissions:[31]

> As new participants enter the market and as the market cap is ratcheted down over time, GHG emission allowance and offset prices will increase,

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[28] See generally Pechman, supra note 15, at 4-8; 2008 Energy Action Plan Update, *available at* http://www.energy.ca.gov/2008publications/CEC-100-2008-001/CEC-100-2008-001.PDF.

[29] S.B. 1368, Ch. 598 (2006), *available at* http://www.leginfo.ca.gov/pub/05-06/bill/sen/sb_1351-1400/sb_1368_bill_20060929_chaptered.html.

[30] Pechman, supra note 15, at 7-8 (emphasis added).

[31] FSA Part 2 at p. 4.1-178

encouraging innovation by market participants to reduce their GHG emissions. Thus, AEC, as a GHG cap-and-trade participant, would be consistent with California's AB 32 Program.

But that policy cited in the FSA Part 2 is clearly undermined in this case. The purported market incentives cannot encourage "innovation" by AEC to "reduce" its GHG emissions in the future. There is no need for the proposed 1040 MW of gas-fired generation now, and everything over 640 MW is purportedly being constructed for future needs. There is no "market incentive" to "innovate" in the future if this Commission allows development of the additional gas-fired generation now.

c. LORS

The CPUC has already defined one alternative that both meets the "basic" objectives of the proposed project at this site - grid reliability in the LA Basin - as well as the identical objectives in the LTPP process. The CPUC decided that any more than 640 MW of gas-fired generation at this site would be inconsistent with the mandates in state laws, regulations and standards.

The primary consideration in these State laws is the reduction of GHG emissions. This mandate to "reduce" GHG emissions is distinguishable from SCAQMD's regulations and practices to "mitigate" emissions after the fact. **Both are LORS, and both need to be considered in the FSA.**

d. Alternatives Mandate

The FSA must be revised to document and analyze alternatives that meet the mandates of CEQA as well as this Commission's regulations to only approve projects that are consistent with LORS.

2. Air Quality – Dust

a. Baseline and Non-Attainment – Dust

The FDOC and FSA state the area is in "Non-Attainment" for PM10 and PM2.5.[32] Further, the City's SEASP DEIR lists the area as "Serious Nonattainment" for PM10 and "Nonattainment" for PM2.5.[33]

Table 5.3-2 Attainment Status of Criteria Pollutants in the South Coast Air Basin

[32] FSA Part 2 at p. 4.17- 13

[33] SEASP DEIR at p. 5.3-14 *available at* http://www.lbds.info/planning/environmental_planning/environmental_reports.asp and (attached)

Pollutant	State	Federal
Ozone – 1-hour	Extreme Nonattainment	No Federal Standard
Ozone – 8-hour	Extreme Nonattainment	Extreme Nonattainment
PM10	Serious Nonattainment	Attainment/Maintenance
PM2.5	Nonattainment	Nonattainment
CO	Attainment	Attainment
NO2	Attainment	Attainment/Maintenance
SO2	Attainment	Attainment
Lead	Attainment	Nonattainment (Los Angeles County only)[1]
All others	Attainment/Unclassified	Attainment/Unclassified

Source: CARB 2014.

[1] In 2010, the Los Angeles portion of the SoCAB was designated nonattainment for lead under the new 2008 federal AAQS as a result of large industrial emitters. Remaining areas within the SoCAB are unclassified.

b. Cumulatively Considerable – Dust

As explained in the Trust Brief on FSA Part One (TN 214629-1), the documentation of a "cumulatively considerable" contribution to significant impacts is a multi-part analysis.

When an area is already suffering significant environmental problems from past and present circumstances, the analysis of the project's contribution to the existing environmental degradation must be based on the premise that the greater the existing environmental problems are, the lower the threshold should be for treating a contribution to cumulative impacts as significant.

The proposed project is in an area of non-attainment for PM10 and PM2.5 emissions.[34] As stated in more detail in Section 3 below on Biological Resources, Commission staff has opined that dust can have adverse impacts on vegetation, and the City's SEASP DEIR finds that dust can significantly impact water resources and ecosystem health.[35] Wetlands vegetation is both important in and of itself, and for the health of wetlands ecosystems. Compounding the existing deposition of dust, including PM10 and PM2.5, on wetlands vegetation in an area already considered non-attainment, is a cumulatively considerable impact.

But staff assumed in the Part One Biological Resources section that the operation of the proposed AEC would not emit dust and consequently there was no "cumulatively considerable" impact.[36]

[34] FSA Part 2 at p. 4.17- 13, see also SEASP DEIR, supra note 26, at p. 5.3-14
[35] SEASP DEIR, supra note 26 at p. 5.3-9 fn 2
[36] TN 214529: Part One Hearing Transcript, at p. 104, lines 2-10

In contradiction of the CEQA case law discussed below, the FSA Part 2 now illustrates the proposed project would emit tons of dust every month, yet finds:[37]

> Furthermore, as demonstrated in **Air Quality Table 47,** the contribution from the AEC and surrounding sources alone are a small percentage of the total impact. The background values account for the majority of the total impact even taking into consideration the conservative assumptions used for the cumulative modeling analysis.

This is exactly the "ratio model" the courts have rejected.

Further, the FSA Part 2 states:[38]

> The highest criteria pollutant or average concentrations from the last three years of available data collected from the surrounding monitoring stations are used to determine the recommended background values.

While this may be a "conservative assumption" for documenting the level of non-attainment, as the FSA asserts, it is not a conservative assumption to estimate the "cumulatively considerable" contribution of the proposed AEC to the impact.

The FSA must not only determine the significance of the cumulative impacts from dust emitted from the several projects on the "list" of projects in the FSA (not just the stationary sources supplied by the SCAQMD), including the AGS demolition, it must also identify whether the proposed AEC's incremental contribution to a significant cumulative impact is "cumulatively considerable." It is not enough for the FSA to include a statement concluding that the adverse impacts from operation of the proposed AEC will not be cumulatively considerable because they are mitigated to less than significant – the required analyses are more complex.

Communities for a Better Environment v. California Resources Agency [(2002) 103 Cal. App. 4th 98, 126 Cal. Rptr. 2d 441 *("Communities for a Better Environment")],* invalidated certain CEQA provisions and clarified the seminal appellate decision on cumulative impacts analysis, *Kings County Farm Bureau v. City of Hanford* [(1990) 221 Cal. App. 3d 692, 270 Cal. Rptr. 650]. In *Kings County,* the court rejected the cumulative analysis prepared for a proposed coal-fired cogeneration plant in which the lead agency determined the project's impact on air quality was not cumulatively considerable because it would contribute less than one percent of area emissions for all criteria pollutants. [221 Cal. App. 3d at 718-719.] The court criticized the lead agency's focus on the ratio between the project's impacts and the overall environmental problem, rather than on the combined effect of the project in addition to already adverse conditions.

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[37] FSA Part 2 at p. 71 (emphasis added)
[38] FSA Part 2 at p. 4.7-21

Under this (impermissible) approach, which the court dubbed the "ratio theory", "the greater the overall problem, the less significance a project has in a cumulative impact analysis." [221 Cal. App. 3d at 721.] Instead of trivializing a project's impacts by comparing them to the impacts of other past, present, and probable future projects, CEQA requires the lead agency to first combine the impacts. When this is done properly, the FSA may find that the scope of the environmental problem is so severe that even a minuscule incremental change would be cumulatively considerable and thus significant. In this case, the area considered non-attainment for PM10 and PM2.5. The FSA must adequately document these cumulative impacts, and find that even an incremental addition of air quality degradation would be cumulatively considerable. And that, in turn, requires an analysis of alternatives that may reduce those significant cumulative impacts.

The *Communities for a Better Environment* decision built upon and expanded the analysis in *Kings County.* In *Communities for a Better Environment,* the court invalidated an amendment to the CEQA Guidelines enacted in 1998 that permitted an EIR to find a project's contribution to a significant cumulative impact "de minimis" if the environmental conditions would be the same whether or not the proposed project is implemented. *[Communities for a Better Environment,* 103 Cal. App. 4th at 117-118.] The court found this approach counter to the *Kings County* decision, as well as other decisions rejecting the "ratio theory", e.g., *City of Long Beach v. Los Angeles Unified School Dist.* [(2009) 176 Cal. App. 4th 889, 98 Cal. Rptr. 3d 137 *("Los Angeles Unified")* (EIR improperly relied on a ratio theory to conclude that a project's relatively small contribution to noise impacts were not significant)].

The relevant question here, as set forth by the court, is whether any additional amount of effect is significant (i.e., cumulatively considerable) **in the context of the existing cumulative effect**. [103 Cal. App. 4th at 119.] In other words, "the greater the existing environmental problems are, the lower the threshold should be for treating a contribution to cumulative impacts as significant." [103 Cal. App. 4th at 119.] Although stating the" 'one additional molecule rule' is not the law," the court provided no further guidance on when a very small incremental contribution to an existing environmental problem would be significant, i.e., cumulatively considerable. [103 Cal. App. 4th at 119.]

Contrary to that rule, the FSA Part 2 concludes:[39]

> The PM10 and PM2.5 emissions and the PM10/PM2.5 precursor emissions from the proposed facility modifications would contribute to the existing violations of PM10 and PM2.5 ambient air quality standards. The SCAQMD would offset the PM10 emissions from its internal bank to mitigate the PM10/PM2.5 impacts of the combustion gas turbines to a less than significant level. The offsets would be in sufficient quantities to satisfy Energy Commission staff's recommendation that all

[39] FSA Part 2 at p. 109

> nonattainment pollutant and precursor emissions be offset at least one-to-one.

The FSA Part 2 assumes that "offsets" from the SCAQMD mitigation bank would have the benefit of reducing dust accumulating on the nearby wetlands vegetation and affecting the benefits of healthy vegetation to wetlands ecosystem functions.

However, FSA Part One made the distinction:[40]

> Regional Clean Air Incentives Market ("RECLAIM") Trading Credits would offset the AEC's annual NOx increase in a 1-to-1 ratio so that the proposed project would not result in a net increase in NOx basin-wide (see the **Air Quality** section for more information on the RECLAIM program) (AEC 2014b). This offset would mitigate the project's effects to basin-wide nitrogen deposition. The biological effects of nitrogen deposition analyzed here are distinct from regional basin-wide NOx effects because the potential effect to biological resources is localized, limited to the area where atmospheric nitrogen pollutants specifically attributed to the project's exhaust plume may be deposited on the soil.

The FSA must include a description of the heightened standard applied, given the degraded nature of the area and the non-attainment of the PM10 and PM2.5 standards in the area. It need not prohibit "one additional molecule" but any more than that needs a more robust description than provided in the FSA Part 2. Emitting tons of dust every month in the form of fine particulate matter is more than the "one additional molecule" the court found unnecessary to consider. Further, the analysis must include a "localized" consideration for dust, and findings that mitigation of "regional" mitigation banks do not adequately mitigate impacts to local wetlands habitat and wildlife, including PM10 and PM2.5 deposition and cumulative fugitive dust from construction of AEC and/or demolition of AGS.

Further, as explained below in Section 3 on Traffic, the mitigation offsets do not appear to calculate nor mitigate the air quality degradation, and associated impacts on wetlands habitat, from long-term traffic for construction and operation of the proposed AEC, demolition of the AGS and other foreseeable projects in the FSA "cumulative impacts project list". Nor does the FSA document the added emissions attributable to the cumulative impacts from traffic sitting at idle in areas already documented as congested.

The best way to "mitigate" adverse impacts to the nearby wetlands is to minimize the impacts in the first place through consideration and adoption of superior alternatives. But that is not considered in the FSA. By improperly finding there are no significant cumulative impacts from the proposed project and reasonably foreseeable future projects, the FSA has illegally avoided an

[40] TN 213768: FSA Part One at p. 4.2-34

analysis of feasible alternatives that would minimize, if not eliminate, adverse past, present and future impacts to nearby wetlands.

c. Alternatives Mandate – Dust

Clearly the cumulative dust emissions from construction of the AEC and operation of the AGS, followed by even greater dust emissions from demolition of the AGS and operation of the AEC, are significant. Further, the addition of PM10 and PM2.5 from operation of the proposed AEC to a non-attainment area during demolition of the AGS is "cumulatively considerable" when applying the *Communities for a Better Environment* rule. Finally, mitigation of dust emissions in a regional plan to "less than significant" does not result in minimizing adverse impacts to local coastal estuarine wetlands.

Alternatives can directly minimize the adverse impacts. Constructing only 640 MW of gas-fired capacity at Alamitos will reduce PM10 and PM2.5 emissions relative to constructing 1,040 MW of gas-fired capacity. Constructing only 400 MW of simple cycle gas-fired capacity, and substituting additional gas-fired capacity with 200 MW of additional battery storage from the proposed AES Battery Energy Storage System at Alamitos, will further reduce PM10 and PM2.5, as well as GHG emissions, associated with the AEC.

3. Biological Resources

a. Dust & PM

The Biological Resources section of the FSA must identify cumulative impacts to the wetlands from dust. In the Part One Evidentiary Hearing, staff stated:[41]

> "During operation, I can't testify as to whether there would be any particulate matter emitted from the plants. I think that would be for the Air Quality staff, in Part Two of these hearings."

Nonetheless, staff concluded:[42]

> "But as far as any cumulative effect of demolition of the existing AGS, along with operation of the AEC, and insofar as how that cumulatively might affect wildlife in the Wetlands, I have the same answer that I did a minute ago. The combined effects of the two may or may not be significant. But if they are significant, the contribution of the operating AEC to such an impact would not be considerable."

Staff did clarify that dust will cover vegetation and impede photosynthesis.[43] But was admittedly unaware if PM10 had the same effect.[44]

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[41] TN 214529: Part One Hearing Transcript, at p. 92, lines 1-4
[42] Ibid at lines 5-12

Dust is dust. "PM10 and PM2.5 are dust that comes from power plants and other sources." According to ARB:[45]

> PM10 is a major component of air pollution that threatens both our health and our environment.
>
> **Where does PM10 come from?**
>
> In the western United States, there are sources of PM10 in both urban and rural areas, major sources include:
>
> 1. Motor vehicles.
> 2. Wood burning stoves and fireplaces.
> 3. Dust from construction, landfills, and agriculture.
> 4. Wildfires and brush/waste burning.
> 5. Industrial sources.
> 6. Windblown dust from open lands.
>
> PM10 is a mixture of materials that can include smoke, soot, dust, salt, acids, and metals. Particulate matter also forms when gases emitted from motor vehicles and industry undergo chemical reactions in the atmosphere.[46]

Further, the City of Long Beach has also found numerous adverse impacts from emissions of Particulate Matter:[47]

> Particulate matter can be carried over long distances by wind and then settle on ground or water, making lakes and streams acidic; changing the nutrient balance in coastal waters and large river basins; depleting the nutrients in soil; damaging sensitive forests and farm crops; and affecting the diversity of ecosystems.

The local area of the project site is already in non-attainment for PM10 and PM2.5, and by law even a small incremental addition of dust to the adjacent area is "cumulatively considerable."[48] Further, regional mitigation credits will not suffice to minimize the cumulative impacts to local wetlands resources.

The dust from demolition of AGS is likely to be much greater than dust from construction of the proposed AEC.[49] The FSA fails to document, even qualitatively, that vintage power plants are constructed of materials that create dust during dismantling. It is inadequate to assume that dust from construction of a new power

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[43] Ibid at p 94, lines 7-8
[44] Ibid, lines 14-16
[45] PM10 manual at https://www.arb.ca.gov/html/brochure/pm10.htm (underline emphasis added)
[46] Ibid (emphasis added)
[47] SEASP DEIR, supra note 26, at p. 5.3-9 fn 2 (emphasis added)
[48] See supra, Section 2, analysis of *Communities for a Better Environment v. California Resources Agency* [(2002) 103 Cal. App. 4th 98, 126 Cal. Rptr. 2d 441
[49] See eg., TN 214152: *Vintage Power Plants: Environmental Characterization, Decontamination, and Demolition*

plant using clean materials will be comparable to demolition of an old power plant covered in accumulated dust and constructed with materials that will create excessive dust when disturbed.[50]

Operation of the proposed AEC will emit significant amounts of dust -- CCGTs monthly emissions of PM 10/PM2.5 would be 6,324 lbs and SCGTs monthly emission of PM10/Pm2.5 would be 4,638.14 – the cumulative emissions being approximately 10,968 pounds per month.[51] Of course, without a demolition plan and timeline, the conservative assumption is that both CCGT and SCGT will be operating when demo occurs. Despite the imposition of regional mitigation credits, the local deposition of dust from operation of the proposed AEC will create a cumulatively considerable impact locally, making the significant impact of demolition considerably greater.

In conclusion, given the past and present degradation of wetlands habitat from non-attainment status of the area, the foreseeable cumulative impacts of dust from demolition and traffic, the emission of tons of PM10 and PM2.5 from the proposed project is "cumulatively considerable" even if "mitigated to less than significant." **Therefore, the Commission must consider a range of alternatives that minimize the adverse impacts, and identify a "superior alternative."**

b. Hazardous Materials

Demolition of vintage power plants requires the identification of numerous hazardous materials, removal and storage of those materials on-site, and removal of the materials for disposal in proper sites.[52] All of this will create dust that, without proper safety requirements, will be released into the environment. None of that potential air quality degradation from hazardous materials disturbed during demolition has been adequately documented in the FSA, even in qualitative terms. And the mitigation measures for fugitive dust from construction of the proposed AEC are not comparable to industry standards for demolition of vintage power plants – including the potential airborne release of toxic materials during demolition.[53]

Construction and operation of the proposed AEC will also require handling and use of similar materials like mercury, oils and solvents, etc, and different hazardous materials like ammonia. While the FSA includes Conditions of Certification to minimize the potential for release of these materials, it fails to document the potential for the simultaneous release of hazardous materials into the environment during demolition of the AGS.

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[50] Ibid.
[51] Supra, note 19.
[52] See eg., TN 214152: *Vintage Power Plants: Environmental Characterization, Decontamination, and Demolition*
[53] Ibid

And the operation of the AEC may be a "cumulatively considerable" contributing factor to significant impacts of hazardous materials. For example, operation of the proposed facility will emit ammonia into the environment.

In conclusion, given that construction and demolition will create foreseeable cumulative impacts on air quality degradation from release of hazardous materials, the emission of hazardous materials from operation of the proposed AEC is "cumulatively considerable." Therefore, the Commission must consider a range of alternatives that minimize the adverse impacts, and identify a "superior alternative."

4. Traffic & Transportation

a. Baseline and Non-Attainment

The Applicant has refused to supply a plan and timeline for demolition of AGS and it is impossible to know how far into the future demolition may occur. So, it is relevant to consider reasonably foreseeable cumulative impacts from other demolition and construction projects well into the future, despite not having a date for demolition of AGS.

The City is currently reviewing a local land use plan modification, and the DEIR Traffic & Transportation analysis is available. It is clear from the long-term study conducted by the City of Long Beach that the area surrounding the proposed project already suffers significant traffic congestion.[54] And it is reasonably foreseeable that traffic congestion will get worse over time. For example, as documented in the SEASP DEIR:[55]

Table 5.16-10 shows the increase in V/C due to the Project, which determines if a significant impact would occur according to the applicable agency thresholds for significance. As shown in Table 5.16-10, all 15 study intersections are forecast to result in a significant impact for 2035 With Project Conditions:

- Studebaker Road & SR-22 Westbound Ramps (Caltrans): AM Peak Hour (LOS D), PM Peak Hour (LOS F)
- Ximeno Avenue & 7th Street: AM Peak Hour (LOS E), PM Peak Hour (LOS F)
- Pacific Coast Highway & 7th Street (Caltrans): AM Peak Hour (LOS F), PM Peak Hour (LOS F)
- Bellflower Boulevard & 7th Street (Caltrans): AM Peak Hour (LOS E), PM Peak Hour (LOS E)
- Channel Drive & 7th Street (Caltrans): PM Peak Hour (LOS F)

[54] SEASP DEIR – Traffic at p. 5.16-13, supra note 26 and attached
[55] Ibid at p. 5.16-39

- Campus Drive & 7th Street (Caltrans): AM Peak Hour (LOS D)
- Studebaker Rd & SR-22 Eastbound Ramps (Caltrans): PM Peak Hour (LOS D)
- Pacific Coast Highway & Loynes Drive (Caltrans): PM Peak Hour (LOS F)
- Studebaker Road & Loynes Drive: PM Peak Hour (LOS E)
- Marina Drive & 2nd Street: PM Peak Hour (LOS E)
- Pacific Coast Highway & 2nd Street (Caltrans): AM Peak Hour (LOS F), PM Peak Hour (LOS F)
- Shopkeeper Road & 2nd Street: PM Peak Hour (LOS F)
- Studebaker Road & 2nd Street: PM Peak Hour (LOS E)
- Seal Beach Boulevard & 2nd St/Westminster Boulevard (City of Seal Beach): PM Peak Hour (LOS F)
- Pacific Coast Highway & Studebaker Road (Caltrans): PM Peak Hour (LOS E)

(SEASIP DEIR at p.5.16-37)

And the Trust's expert challenged that analysis as an underestimate of the problems:

> [The] Draft EIR and the supporting TIA for the Southeast Area Specific Plan are flawed. Gridlocked conditions will result on weekdays from the development of 5,439 condominium-townhomes and 701,344 square feet of retail. Only one of the 15 significant traffic impacts will be mitigated.[56]

During demolition of AGS it is reasonably foreseeable that the removal of the debris will require heavy equipment on-site and numerous truck trips to remove the debris from the site.[57]

Further, this additional traffic adds to congestion and associated increased air emissions, compounding the air quality degradation calculations in the FDOC and FSA.

b. Cumulatively Considerable

The baseline traffic congestion is significant and it is reasonably foreseeable it will get significantly worse. The addition of traffic during AGS demolition is cumulatively significant. Given the dramatic traffic problems in the area, workers coming in and

[56] SE Area Specific Plan DEIR TB 09 13 2016 at p. 1 (attached)

[57] See eg, TN 214152, TN 214190, and TN 214191

out of the site for the proposed project will add a "cumulatively considerable" impact to traffic congestion, and consequently air quality degradation.

c. Mitigation

It appears from the SEASP DEIR and the FSA Part One that the City and this Commission are considering similar mitigation measures on the same areas of congestion. However, because of the long-term review in the SEASP DEIR, and the absence of any long-term analysis of demolition of AGS and other projects, the FSA fails to document the significant cumulative impacts and the "cumulatively considerable" impacts from the proposed AEC.

d. Alternatives

Given the significant present baseline, the significant cumulative impacts of foreseeable future projects, and the cumulatively considerable additional impacts from the proposed project, the Commission must analyze alternatives that minimize the significant impacts and identify a "superior alternative." As noted above, feasible alternatives of a project limited to the proposed CCGT power block, or the proposed SCGT power block in combination with the Applicant's BESS storage project, would minimize traffic during both construction and operation.

5. Water Resources

As noted above in Section 2 and 3 of this testimony citing the adverse impacts of dust on Biological Resources, air quality degradation can have similarly significant impacts on water resources. For just one example, the City of Long Beach DEIR notes on Particulate Matter:[58]

> Particulate matter can be carried over long distances by wind and then settle on ground or water, making lakes and streams acidic; changing the nutrient balance in coastal waters and large river basins; depleting the nutrients in soil; damaging sensitive forests and farm crops; and affecting the diversity of ecosystems.

For the same reasons argued in Sections 2 and 3 of the Trust's testimony above, "given the past and present degradation of wetlands habitat from non-attainment status of the area, the foreseeable cumulative impacts of dust from demolition and traffic, the emission of tons of PM10 and PM2.5 from the proposed project is "cumulatively considerable" even if "mitigated to less than significant." **Therefore, the Commission must consider a range of alternatives that minimize the adverse impacts, and identify a 'superior alternative'."**

6. Conclusion

[58] SEASP DEIR, supra note 26 and attached, at p. 5.3-9 fn 2 (emphasis added)

The FSA Part 2 describes the air quality impacts of a proposed 1,040 MW gas-fired generation project at AEC. The proposed project consists of 400 MW of additional gas-fired generation beyond what was approved by the CPUC for the Alamitos site in November 2015 to assure grid reliability in the LA Basin. There is no regulatory support for the residents of the LA Basin or the environment to sustain the impact of air pollution and GHG emissions from 400 MW of additional unjustified gas-fired generation. The proposed 640 MW combined cycle block does not meet the fast start project objective described in the FSA. On average the combined cycle block, on an annual usage basis, will emit on the order of ten times the air pollution and GHGs as the simple cycle gas-fired alternative while providing inadequate grid reliability. Substitution of the combined cycle block for the 400 MW of simple cycle gas turbine capacity included in the scope of the proposed AEC, along with the additional 200 MW of battery capacity AES is already proposing to locate at the Alamitos site, will meet all project objectives defined in the FSA while reducing air pollution and GHG emissions by approximately 90 percent compared to combined cycle block emissions.

A 600 MW project at Alamitos is consistent with the grid reliability need identified by the CPUC in the 2012 LTPP process. A project larger than 600 – 640 MW subjects LA Basin residents to unwarranted air pollution and GHG impacts with no offsetting gain in grid reliability.