DOCKETED

Docket Number:	13-AFC-01
Project Title:	Alamitos Energy Center
TN #:	215201
Document Title:	INTERVENOR LOS CERRITOS WETLANDS LAND TRUST Part Two Opening Brief
Description:	N/A
Filer:	ELIZABETH LAMBE
Organization:	Los Cerritos Wetlands Land Trust
Submitter Role:	Intervenor
Submission Date:	1/9/2017 3:51:14 PM
Docketed Date:	1/9/2017

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

INTERVENOR LOS CERRITOS WETLANDS LAND TRUST
Part Two Opening Brief

Submitted by:
Elizabeth Lambe, Executive Director, Los Cerritos Wetlands Land Trust

January 9, 2016

1. Executive Summary

Final Staff Assessment is inadequate to support a decision by the Committee to recommend approval of the proposed facility to the full Energy Commission. The FSA fails to ensure the facility is consistent with state LORS. LORS violations include:

- *State's climate action LORS (AB32, RPS, Loading Order) have been integrated in CPUC Long-Term Procurement Proceeding (LTPP). Since 2001, all power plant procurement has been realized through power purchase agreements (PPAs) whose cost is borne by utility ratepayers. The result of LTPP process was approval of a PPA for 640 MW of gas-fired generation at Alamitos to meet grid reliability and renewable energy integration objectives. Authorization of 1,040 MW of gas-fired generation at the Alamitos site violates climate action LORS evaluated in LTPP process that led to authorization of only 640 MW of gas-fired generation at the site.*
- *The 640 MW combined cycle unit cannot meet 20-minute response time requirement in CAISO Tariff Section 40.3.1.1 under any startup scenario (cold, warm, or hot).*

The FSA fails to meet CEQA standards to document significant impacts to nearby wetlands and the cumulatively considerable contribution of the proposed project to the degradation of the environment from past, present and future projects. Unidentified significant CEQA impacts include:

- *The proposed 640 MW combined cycle unit will emit 11.1 tons per year of additional $PM_{10/2.5}$ emissions and an additional 32. 1 tons per year of VOC emissions over actual $PM_{10/2.5}$ and VOC emissions from existing Alamitos Units 1-6. The increased $PM_{10/2.5}$ emissions will negatively impact the adjacent Los Cerritos Wetlands. The increased VOC emissions will exacerbate ozone non-attainment in the LA Basin. Neither AES nor Commission staff have proposed offsets for these $PM_{10/2.5}$ or VOC emissions.*

  The bifurcated process resulted in inadequate analyses of air quality degradation compounding the adverse impacts of the proposed project. For example, no analysis of the negative $PM_{10/2.5}$ air quality impacts of the demolition of existing Alamitos Units 1-6 was included in the scope of the air quality analysis.

-

The conclusion that there will be no significant cumulative impacts is unjustified, and is based inadequate consideration of all applicable LORS. In contrast, feasible and available alternate configurations that AES is pursuing at the Alamitos site, specifically 400 MW of simple cycle gas

turbine capacity and 200 MW of battery storage, would meet the basic objectives of the project, dramatically reduce adverse impacts to the environment, ensure consistency with state LORS to reduce greenhouse gas emissions, and would be consistent with the CPUC's reliability need authorization for the Alamitos site. This Commission must complete a CEQA analysis of the project that meets the grid reliability and renewable energy integration objectives of the state of California as defined by the CPUC – not the corporate aspirations of the Applicant.

In conclusion, the uncoordinated analysis conducted by the Commission in this instance runs the risk of undermining state policy, as adopted in state laws and regulations to modernize the electrical system reliability to minimize greenhouse gas emissions and to ensure protection and enhancement of the environment.

2. Failure to Follow Statutory Mandate Resulted in Inadequate Consideration of LORS

The Part 2 Evidentiary Hearing has precluded a thorough discussion of "need" for the proposed AEC.[1] For the reasons below, the rationale to preclude evidence and testimony on "need" is based on an unduly narrow interpretation of the Warren-Alquist Act. Further, the preclusion of evidence and testimony on "need", both in interpretation of the Act as well as the narrow definition of LORS applicable to this site and facility, results in undermining state laws and policy on energy development, greenhouse gas emission reduction and enhancement of environmental quality.

a. Statutory Mandates: Procedure & Substance

i. SAFC failed to define the Proposal as "Multiple Facility Site" for Expanded Ultimate Capacity

In 2015, the Applicant submitted a Supplemental Application for Certification (SAFC) with a modified project based on the award of a Power Purchase Agreement (PPA).[2] The PPA approved by the California Public Utilities Commission (CPUC), enforcing state law and policy to reduce greenhouse gas emissions, was for no more than 640 MW of gas-fired generation and

[1] See eg, TN 215108, Part 2 hearing transcript, at page 56, lines 5-12

[2] See eg, TN 203870: Status Report #6 (3-13-2015)

at least 100 MW of battery storage.[3] [4] However, without adequate explanation in the SAFC, the proposed Alamitos Energy Center (AEC) is for 1040 MW of gas-fired generation. Further, the Applicant is simultaneously pursuing a 300 MW battery storage facility on the same property.[5] According to the staff analysis, the additional 400 MW of gas-fired generation would not be built without first receiving a separate Power Purchase Agreement.[6] This characterization of the proposed AEC defines the Commission's mandatory findings in the PMPD and Final Decision.

The Warren-Alquist Act (Act) defines a site for "expanded ultimate capacity" as a "multiple facility site."[7] Further, the Act requires the expanded capacity must be in conformity with the Commission's 12 year demand forecast, and must be proposed for development within that 12 year demand forecast.[8] But there is no rationale provided in the SAFC for expanding the ultimate gas-fired generating capacity by 400 MW, nor is there a finding when that expanded capacity would be developed.

By definition in the Act, the AEC is a "multiple facility site" proposed as one 640 MW "facility" to be built in accordance with the Power Purchase Agreement approved in the CPUC order[9], and a separate 400 MW facility that, according to the staff analysis, would be built in the future if a PPA is forthcoming through a CPUC Long-Term Procurement Proceeding (LTPP) proceeding. Despite the fact that a single gas-fired generation facility would be exempted from the "requirement" to file a "notice of intention"[10], the application for "expanded ultimate capacity" should have followed the procedures for a "multiple facility site."

However, the SAFC failed to identify the proposed AEC as a "multiple facility site", as mandated in the Act. And the record fails to document that the proposed 400 MW facility for "expanded ultimate capacity" is in conformity with the Commission's 12-year demand forecast

---

[3] The loading order is a regulatory standard based on several California laws enforced by the CPUC. The CPUC decision is proof that those laws and regulations are "applicable" LORS for the proposed facility.
[4] Exhibit 3044, TN 212764-2
[5] Exhibit 3045, TN 212764-3
[6] FSA Part 2 at 4.1-191: "*It is not expected that developers of new capacity, such as the developer of AEC, would bring a project to completion without a contract.*"
[7] Warren Alquist Act, Public Resources Code, Section 25000 et seq, at Section 25516.5: see 2016 version at: http://www.energy.ca.gov/reports/Warren-Alquist_Act/ (hereinafter "Act")
[8] Ibid at 25514.5
[9] See: Exhibit 3044, TN 212764-2
[10] See Act at 25540.6 (1)(a)

– nor that the 400 MW of expanded capacity will be developed in the 12-year forecast period.

The flawed description in the application, and the inadequate analysis of conformity with the Commission's 12-year demand forecast, is a fatal flaw.

Further, as described below in section 1b, given the flawed description of the proposed facilities in the application, the final staff analysis has also failed to analyze the inconsistency of the proposed facilities with state laws[11] to reduce greenhouse gas emissions directly applicable to this site through the CPUC decision applying the loading order regulations to enforce those laws.

State's climate action LORS (AB32, SB32, RPS, Loading Order) have been integrated in CPUC's LTPP process. Since 2001, all power plant procurement has been realized through PPAs. The cost of the PPAs is borne by utility ratepayers.[12] The result of the LTPP process was approval of a PPA for 640 MW of gas-fired generation at Alamitos to meet grid reliability and renewable energy integration objectives – the same "basic objectives" in the SAFC. Approving 1,040 MW of gas-fired generation here would be inconsistent with climate action LORS evaluated in a LTPP process that led to a specific authorization of 640 MW of gas-fired generation at the Alamitos site.

ii. Finding a "Need" for the Facilities Is Integral Part of California Regulatory Structure

Staff has repeatedly stated that the SAFC is not required to identify "need" for the generating capacity because 1999 amendments to the Act found deregulation made a need assessment "inappropriate" in a deregulated power market.[13] That broad policy statement is included in the Act's legislative findings.[14] However, this 1999 interpretation was superseded in 2001 in the wake of the failure of deregulation by AB57 and ABX1, which returned long-term procurement planning to the investor-owned utilities, overseen by the CPUC.[15] As noted above,

[11] Applicable state laws includes AB 32 (2006) and SB 32 (2016)
[12] FSA Part 2, p. 4.1-191. "No merchant plant has been developed since the energy crisis (2000 – 2001) without a (ratepayer funded) contract."
[13] TN 214738, AES Reply Brief, at p. 15, see also TN 215108 Hearing Transcript, at p.56, lines 5-11
[14] Act at 25009
[15] California Public Utilities Commission, D.02-10-062, *Order Instituting Rulemaking R.01-10-024 to Establish Policies and Cost Recovery Mechanisms for Generation Procurement and Renewable Resource Development*, pp. 2-3, p. 6.

no merchant plant has been developed since the energy crisis (2000 – 2001) without a ratepayer- funded contract.[16]

Further, more specific sections of the Act undermine the staff's reliance on that broad legislative finding on need determination in Section 25009.

The Act mandates creation and management of the IEPR to include regular updates on demand forecasts and information to ensure compliance with state laws to protect the environment and reduce greenhouse gas emissions.[17] These IEPR reports form the foundation of the so-called "12-year demand forecast." In turn, that 12 year demand forecast is incorporated into Chapter 6 of the Act: *Power Facility and Site Certification*.

For example, the Act requires the Commission to certify sites and related facilities[18] "…required to provide a supply of electric power sufficient to accommodate the demand projected in the most recent forecast of [service] area electric power **demands**." The Act also requires[19] "…a statement of **need** for the facility and information showing the compatibility of the proposals with the most recent electricity report…." Clearly, these discrete directives in the *Facility and Site Certification* mandates include, at a minimum, a discussion of "need" to meet projected demand.

And the Act includes the more direct mandate for the Commission to hold hearings in order to[20]: "…accomplish all of the following purposes:

(a) To set forth the **electrical demand** basis for the proposed site and related facility.

(d) To solicit information regarding **reasonable alternative sources of the electric generating capacity or energy** to be provided by alternative sites and related facilities, or combinations thereof, which will better carry out the policies and objectives of this division."

Clearly, given the proposed AEC meets the definition of a "multiple facility site" for "ultimate expanded capacity", the preclusion of evidence and testimony on the "need" for the facility undermines the mandate for the Committee to consider the demand for the proposed AEC, as well as alternative sources of "generating capacity or energy" that would better carry out state

[16] Supra, footnote 13
[17] See eg., Act at 25305
[18] Act at 25500.5 (emphasis added)
[19] Act at 25504 (emphasis added)
[20] Act at 25509.5

policy to reduce greenhouse gas emissions – such as the 300 MW battery storage facility proposed by the Applicant.

Finally, the Act mandates that the final report include:[21]

> "(1) The 12-year forecast of statewide and service area electric power demands adopted pursuant to subdivision (e) of **Section 25305**, except **as provided in Section 25514.5**.

As stated above, the mandatory findings in section 25514.5 apply to this "multiple facility site" determination. But in the alternative, while Section 25305 has been amended and no longer includes sub-section (e), the policies still clearly include:[22] "protecting and **enhancing** the environment" – a much higher standard than the CEQA standard used in the FSA. And section 25305 includes:[23] "…achieving energy efficiency and energy conservation; implementing load management; pursuing research, development, demonstration, and commercialization of new technologies; promoting renewable generation technologies; reducing statewide greenhouse gas emissions and addressing the impacts of climate change on California."

This discrete mandate for findings in the final report are clearly the functional equivalent to the loading order enforced by the CPUC's final decision limiting gas-fired generation at this site to no more than 640 MW. The staff analysis is not adequate to provide the information necessary to make the mandated findings in the final report. Further, the staff analysis fails for not adequately considering inconsistency with LORS enforced by the CPUC.

The staff analysis, and comments at the Evidentiary Hearing, precluding a consideration of "need" based on legislative findings in the Act was clearly an overreach and undermined the more discrete mandates in the procedural and substantive sections of the Act. Further, given the mandates in the Act for the Committee to consider information and policies included in the IEPR, in particular those that are the equivalent to the laws and regulations enforced by the CPUC, the staff assessment and discussion to exclude the CPUC decision to limit gas-fired generation at Alamitos to no more than 640 MW violates the mandatory "LORS consistency" requirements in the Act.[24]

b. <u>LORS Violation #1</u>: Evaluation by CEC of much larger project than

[21] Act at 25514 (emphasis added)
[22] Act at 25305 (emphasis added)
[23] Ibid
[24] Act at 255205

approved by CPUC in LTPP process is violation of LORS

The FSA makes unfounded assumptions and fails to document laws mandating reduction of GHG emissions, and instead relies on after-the-fact mitigation. Further, Public Utilities Code specifically establishes the responsibility of a utility "to fullfill its obligation to serve its customers at just and reasonable rates."[25] Further, the limitations on the power of the CEC to affect utility supply plans are specifically re-affirmed:[26] "Nothing in this section expands, modifies, or limits the Energy Commission's existing authority and responsibilities as set forth in Sections 25216, 25216.5, and 25323 of the Public Resources Code." And the Warren-Alquist Act, as codified in the Public Resources Code, specifically provides:[27] "Nothing in this division shall authorize the commission in the performance of its analytical, planning, siting, or certification responsibilities to mandate a specified supply plan for any utility."

If this Commission were to disregard the supply plan mandated pursuant to state law by the CPUC in its approval of the utilities' LTPP, the CEC would be impermissibly substituting its supply planning judgment for the supply plan which state law, in both the Public Utilities Code and Public Resources Code, has committed to determination by the CPUC. The CEC would abuse its discretion in disregarding the interpretation of state LORS by the CPUC in approving a specific capacity needed at a given site for grid reliability.

During the Part 2 Evidentiary Hearing the Hearing Officer stated:[28]

> So when I've been seeing these documents that come through from the CPUC or that are affected by the LTTP process, those usually go to need. I don't really see any use for them, other than to bolster the argument with regard to need [that]Los Cerritos Wetlands Land Trust has made in
> several of their documents.

The Hearing Officer also clarified:[29] "…a decision from another agency isn't a LORS."

To be clear, the Land Trust is not implying the CPUC decision is a LORS. The "state laws"[30] the CPUC enforces through the "loading order" are LORS. The CPUC decision is evidence that those laws are applicable to this site and facility. Consequently this Commission must provide an overriding consideration before approving an application for gas-fired generation that exceeds

[25] Pub Util Code section 454.5 (d) (1)
[26] Ibid at 454.5 (h)
[27] Act at 25323
[28] TN 215108 at p.56, lines 5-11
[29] Ibid at p. 78, lines 24-25
[30] See eg, AB32 (2006) and SB32 (2016)

what state laws allow, as reflected for this site in the CPUC decision authorizing a PPA for 640 MW of gas-fired generation.

The Commission is reviewing an application to construct a 1,040 MW gas-fired facility at Alamitos. Nonetheless, FSA Part 2 argues:[31] "*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. But what is missing in the FSA is identification and analyses of the proposal as an "ultimate expanded capacity" at a "multiple facility site."[32]

Further, the Commission and Applicant rely on amendments to the Warren-Alquist Act in 1999 that purportedly alleviated the requirement for this Commission to find a "need" for new power plants.[33] In the context of a LORS consistency analysis, 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 (LORS) to reduce GHG emissions. The narrow consideration of amendments to the legislative findings in the Warren-Alquist Act does not alleviate the Commission's duty to ensure approval of new power plants is consistent with other state laws and regulations as they have been applied to this site by other executive state agencies.

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.[34] That same year,

---

[31] FSA Part 2 at 4.1-191.
[32] See section 1(a)(i) above
[33] TN 214738, Applicant Reply Brief, at p. 15
[34] 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.

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.[35] 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 the so-called "Loading Order" which prioritizes the acquisition of new energy from conservation (efficiency and demand response), renewable resources, and distributed generation before the construction of new natural gas capacity.[36]

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.[37] The CPUC necessarily must take these goals and standards into consideration in making decisions to approve utility procurement plans and power purchase agreements. Consequently this Commission must take into consideration the CPUC's enforcement of State laws, regulations and standards to ensure the certification of the proposed AEC facilities is consistent with the PUC decision. The laws and regulations CPUC is enforcing are the basis of this Commission's required LORS analysis. The CPUC decision itself is simply evidence that those LORS are "applicable" to the proposed AEC site and facility certification.

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:

---

[35] 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.
[36] 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.
[37] 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.

> 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.[38]

But the FSA Part 2 relies on after-the-fact mitigation in a way that undermines state laws and policies to reduce 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:[39]

> *As new participants enter the market and as the market cap is ratcheted down over time, GHG emission allowance and offset prices will increase, 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 assumption 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 all capacity greater than 640 MW is purportedly being constructed for future needs. There is no "market incentive" to "innovate" in the future if this Commission approves development of the additional gas-fired generation now.

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

[38] Pechman, supra note 15, at 7-8 (emphasis added).
[39] FSA Part 2 at p. 4.1-178

practices to "mitigate" emissions after the fact[40]. Both are LORS, and both need to be considered in the Presiding Members Preliminary Decision.

c. <u>LORS Violation #2</u>: Proposed first phase 640 MW combined-cycle cannot comply with CAISO startup LORS of full power in 20 minutes or less following a dispatch order (CAISO Tariff 40.3.1.1) and as a result generates excessive startup air pollution emissions compared to simple cycle gas-fired generation alternative that can meet dispatch timeline in CAISO Tariff 40.3.1.1

i. Grid reliability is fundamental project objective for AEC – this objective cannot be met with combined cycle technology.

The FSA Part 2 specifically states that the duration of a cold startup of the 640 MW combined-cycle block is 60 minutes from ignition to full load for a cold start, and 30 minutes from ignition to full load for a warm start or a hot start:[41]

- Cold Start Event: The combustion turbine and steam generation system are at ambient temperature at the time of startup. These conditions are expected to occur if the equipment has been non-operational for 48 hours. It can take up to 60 minutes from fuel initiation for the equipment to reach a base load operating rate.
- Warm Start Event: The combustion turbine and steam generation system have been non-operational between 10 and 48 hours. It can take up to 30 minutes from fuel initiation for the equipment to reach a base load operating rate.
- Hot Start Event: The combustion turbine and steam generation system have been non-operational up to10 hours. It can take up to 30 minutes from fuel initiation for the equipment to reach a base load operating rate.

The FSA Part 2 does not address the additional time between when CAISO issues a dispatch order to AES to run the combined cycle unit and when ignition occurs.[42] Therefore, the

[40] See TN 215108, Hearing Transcript, at p. 70, line 20 to p. 72, line 4 (discussion of applicable LORS and SCAQMD decisions)
[41] FSA Part 2, p. 4.7-28.
[42] FSA Part 2 hearing transcript, December 20, 2016, p. 77, lines 17-21. "MR. SALAMY: From an air quality standpoint, we look at the time when you're actually going to be generating air emissions. So whatever communication between the project and ISO or whatever utility is dispatching them is really irrelevant from our standpoint."

maximum cold start, warm start, and hot start durations identified in the FSA Part 2, from ignition to full load, do not necessarily reflect the entire time interval from issuance of the dispatch order to full load operation.

The AES project manager acknowledged that only a portion of the combined cycle unit could meet the CAISO tariff, stating:[43]

> The generators that are attached to the gas turbine qualify under that tariff. Those are fast starting gas turbines. They can reach full load in ten minutes. The steam turbine lacks, as heat has to be put into the steam system, so it lags. It's slower. It doesn't meet that fast-start resource. So two out of the three on the combined cycle, two out of the three generators or resources meet that tariff.

AES has proposed a Phase I gas-fired resource at Alamitos that can only provide about two-thirds of the gas-fired generation grid reliability, under CAISO's definition of a grid reliability resource in CAISO Tariff Section 40.3.1.1, that was approved by the CPUC. This means that only about 420 MW of the 640 MW of gas-fired generation grid reliability resource approved by the CPUC at the Alamitos site, to assure grid reliability in the LA Basin, can be met by the proposed combined cycle unit, as pointed-out by LCWLT witness Powers:[44]

> The simple-cycle component of the combined-cycle unit can, in fact, meet the response time standard. You have a situation where you have a 640-megawatt grid reliability project wherein only maybe 400 or 420 megawatts can actually meet your project objective, grid reliability.

The FSA acknowledges that the CPUC determines the need for new generation capacity to meet grid reliability needs, stating:[45]

> The need for new generation capacity to ensure reliable service in the investor-owned utility (IOU) service territories is now determined in the CPUC's biennial LTPP proceeding. This proceeding is the forum in which the state's major IOUs are authorized to finance the development of new "least-cost, best-fit" generation (on behalf of either IOU customers or all ratepayers not served by publicly-owned utilities) needed to reliably meet electricity demand.

Through the LTPP proceeding and subsequent "least-cost, best-fit" financial modeling

[43] Ibid, p.78, lines 14-21.
[44] Ibid, p. 81, lines 12-17.
[45] FSA Part 2, p. 4.1-189.

conducted by SCE, the CPUC approved a SCE power purchase agreement for 640 MW of gas-fired generation at the Alamitos site for the specific purpose of assuring grid reliability in the LA Basin.[46] This is first project objective for the AEC as stated in the FSA:[47]

> Develop a project capable of providing energy, generating capacity, and ancillary electrical services (voltage support, spinning reserve, and inertia) to satisfy Los Angeles Basin Local Reliability Area requirements . . .

Yet the relatively slow startup of the combined cycle unit, during a time when the air pollution control systems of the combined cycle unit are either not operational or partially operational, result in higher startup air emissions from the combined cycle unit than fast-start simple cycle units. This was summarized by LCWLT witness Powers at the FSA Part 2 hearing:[48]

> MR. POWERS: This is not legal argument. This is Air Quality. The LMS100s (simple cycle units) emit much less on startup than the combined-cycle unit does.
> HEARING OFFICER CELLI: Right.
> MR. POWERS: Therefore, it is an issue of the only reason they're emitting more on startup is because their startup takes quite a bit longer on the combined-cycle units.

Fundamentally the combined cycle unit is emitting more air pollutants at startup than a fast-start simple cycle unit because of its relatively slow startup characteristic that does not conform with the grid reliability resource response timeline established in the relevant CAISO tariff.

According to the final 2016 decision in the CPUC proceeding that authorized 640 MW of gas-fired generation at Alamitos, any resource bidding into SCE's request for offers for resources to provide grid reliability in the LA Basin must provide full output within 20 minutes of dispatch. The CPUC final decision states:[49]

> We find SCE's inclusion of a 20-minute response time condition for demand response resources procured through this RFO reasonable given

[46] Exhibit 3044, TN 212764-2. CPUC, D.15-11-041, Decision Approving, In Part, Results of Southern California Edison Company Local Capacity Requirements Request for Offers for the Western LA Basin Pursuant to Decisions 13-02-015 And 14-03-004, November 19, 2015, p. 5 and p. 26.
[47] FSA Part 2, p. 1-4.
[48] FSA Part 2 hearing transcript, December 20, 2016, p. 83, lines 2-8.
[49] Exhibit 3080. CPUC, D.16-05-043, Order Modifying Decision 15-11-041 and Denying Rehearing of the Decision as Modified, May 26, 2016.

> the circumstances[50]. . . . CAISO stated that it required the 20-minute response time condition for demand response in local areas for reliability reasons.[51]

As a result of this determination by the CPUC, demand response resources that could not be fully available within 20 minutes of dispatch by CAISO were rejected as grid reliability resources in the LA Basin by the CPUC. This same 20-minute response time condition applies to any grid reliability resource in the LA Basin, including combined cycle units.

CAISO specifically requires grid reliability resources to provide full load output within 20 minutes to meet the requirements of CAISO Tariff Section 40.3.1.1.[52] CAISO states:[53]

> Tariff Section 40.3.1.1, requires the CAISO, in performing the Local Capacity Technical Study, to apply the following reliability criterion:
>
> Time Allowed for Manual Adjustment: This is the amount of time required for the Operator to take all actions necessary to prepare the system for the next Contingency. The time should not be more than thirty (30) minutes.
>
> Accordingly, when evaluating resources that satisfy the requirements of the CAISO Local Capacity Technical Study, the CAISO assumes that local capacity resources need to be available in no longer than 20 minutes so the CAISO and demand response providers have a reasonable opportunity to perform their respective and necessary tasks and enable the CAISO to reposition the system within the 30 minutes in accordance with applicable reliability criteria.

The GE Frame 7A.05 combined cycle unit cannot comply with CAISO's definition of compliance with CAISO Tariff Section 40.3.1.1. This is non-compliance with an applicable LORS that results in elevated startup air emissions. The inability of the combined cycle unit to reach full load within 20 minutes of a dispatch call means: 1) elevated startup air emissions will continue beyond the CAISO-mandated 20-minute maximum startup period permitted for resources intended to serve as grid reliability resources, thereby subjecting local residents and the SCAQMD to elevated startup emissions that would not be emitted during startup of complaint

[50] Ibid, p. 18.
[51] Ibid, p. 19.
[52] Exhibit 3081. CAISO, 2017 *Local Capacity Technical Analysis Final Report And Study Results*, April 29, 2016.
[53] Ibid, pp.15-16.

grid reliability gas-fired resources, and 2) the combined cycle unit should not qualify as grid reliability resources due to startup timelines that exceed 20 minutes.

ii. The selection by AES of high usage combined cycle technology is incompatible with the state's objective of rapid reduction of GHGs and will result in a net increase in GHG emissions from power generation in the LA Basin.

The FSA Part 2 states that the coastal steam boilers had an average capacity factor in 2010 of 5.4 percent, that by that time coastal steam boiler output had largely been displaced by combined cycle units, and that the role of coastal steam units was now limited to "use only during highest-demand hours and when needed to reliably operate the system."[54] The combined capacity factor of the merchant coastal steam boilers in the LA Basin in 2014 was less than 4 percent.[55] Even seven years ago, in 2010, coastal steam boiler output had already been largely displaced by combined cycle capacity in California.

The FSA Part 2 assertion that the proposed 640 MW combined cycle unit will displace lower efficiency coastal steam boiler output is unsupported. That displacement has already occurred by operational combined cycle plants. In fact, the capacity factor of combined-cycle power plants has been in steady decline for the last decade.[56] The problem is too much existing combined cycle capacity in the state, not too little. That is why existing high efficiency combined cycle units, like Sutter and La Paloma Energy Center, are in the process of being mothballed.[57] The construction of a new 640 MW combined cycle unit at Alamitos will shift air emissions currently generated at combined cycle units outside the LA Basin, like La Paloma, into the LA Basin.[58] It will also increase natural gas demand on the SoCalGas LA Basin pipeline system that is currently constrained by the loss of the Aliso Canyon natural gas storage field.[59] The assertion by CEC staff that the proposed combined cycle plant will displace lower efficiency fossil-fuel generation somewhere in the WECC is also unsupported by any evidence in the

[54] FSA Part 2, p. 4.1-192.
[55] Exhibit 3049, (Powers tables from reply brief).
[56] Exhibit 3054, CEC thermal efficiency gas-fired units, March 2016, Table 3, p. 4.
[57] Exhibit 3009, LCWLT opening testimony, October 16, 2016, pp. 3-4.
[58] Ibid, p. 4.
[59] Ibid, p. 4.

record, and is contradicted by the steadily declining capacity factors of existing California combined cycle plants.[60]

In contrast, AES projects a capacity factor of 53 percent for the 640 MW combined cycle unit.[61] As a result of this high capacity factor, the proposed 640 MW combined cycle unit will emit substantially more criteria air pollutants (with the exception of CO) and GHG emissions than the existing Alamitos Units 1-6. A comparison of the emission profiles for the existing Alamitos Units 1-6, 1,950 MW of capacity, and the proposed 640 MW combined cycle unit is provided in Table 1. Comparing the proposed combined-cycle unit to the existing Units 1-6, particulate emissions double, VOC emissions increase by more than a factor of four, and GHG emissions increase over 30 percent.[62]

Table 1. Air emissions: actual 1,970 MW Alamitos Unit 1-6 versus 640 MW CC unit

Emission source	NO_x, tpy	CO, tpy	VOC, tpy	$PM_{10/2.5}$, tpy	CO_2e, tpy
Alamitos Unit 1-6 actual	47.5	287.9	8.9	10.9	927,761
Combined-cycle proposed	50.3	165.3	41.0	22.0	1,222,221

AES has acquired $PM_{10/2.5}$ emission offsets, less than 1 ton per year, for the auxiliary boiler associated with the proposed 640 MW combined cycle unit,[63] but has no plans to acquire $PM_{10/2.5}$ offsets for the 11.1 ton per year increase in emissions from the combined cycle unit compared to existing operations. To avoid emission offsets, SCAQMD Rule 1304(a)(2) only requires that the new combined cycle unit not exceed the aging steam boiler capacity that will be retired at the site.[64] This means that, in the case of AEC, the project developer gets a free pass on a substantial increase in $PM_{10/2.5}$ emissions by installing a high usage combined cycle unit to displace low usage steam boilers that have a higher capacity rating. However, this unmitigated $PM_{10/2.5}$ emissions increase is a substantial CEQA air quality impact.

[60] FSA Part 2 hearing transcript, December 20, 2016, p. 102, lines 8-24.
[61] Exhibit 1608, AES Application for Certification SCAQMD Final FDOC, November 18, 2016, p. 113. Assumed annual hours of combined cycle operation = 4,640. Capacity factor = (4,640 hr/yr)/(8,760 hr/yr) = 0.53 (53 percent).
[62] Ibid, p. 96, pp. 104-105, pp. 112-113. Combined cycle startup/shutdown emissions were calculated by multiplying the number of cold start (80), warm start (88), hot start (332), and shutdown (500) events by the event emission factors in Table 17.
[63] Exhibit 1608, SCAQMD FDOC, p. 196.
[64] Ibid, p. 75.

The same is true of VOC emissions. VOC emissions will increase 32.1 tons per year, yet AES is exempted from offsetting this VOC increase by Rule 1304(a)(2). These VOC emissions represent a substantial unmitigated CEQA air quality impact.

The high usage rate proposed for the combined cycle unit must necessarily displace something other than little-used coastal steam units. The GHG emissions from the proposed 640 MW combined cycle unit will simply displace the GHG emissions from operational combined cycle projects, like the 965 MW La Paloma Energy Center, that will be shut down due to an excess of combined cycle generating capacity in California.[65] No forward progress on local or regional GHG reduction will be achieved by replacing little- used coastal steam units at Alamitos with the proposed high-use 640 MW combined cycle unit. Air pollutant emissions will shift from existing operational combined cycle units outside the LA Basin, like La Paloma, to the Alamitos combined cycle unit in the LA Basin.

iii. 400 MW of LMS100 and 200 MW of battery units meet CPUC-identified local grid reliability capacity requirement at Alamitos, are in process of being approved by CEC and City of Long Beach and would emit 90 percent less air pollution and GHGs than the 640 MW combined cycle block.

The 400 MW of LMS100 units do comply with CAISO startup LORS and are part of the AEC application for certification. The 300 MW of AES battery units (BESS) proposed for Alamitos do comply with the CAISO startup LORS, and do not require CEC approval.

The CEC's most recent published usage rates for California combined cycle and simple cycle units demonstrate that, on average, simple cycle units operate about one-tenth the hours operated by combined cycles on an annual basis.[66] The heat rate of the GE LMS100, the turbine that would be used to provide the 400 MW of simple cycle capacity in AEC Phase 2, is about 40

[65] Exhibit 3009, Powers FSA Phase I opening testimony, at –pp. 3-4

[66] Exhibit 3054, 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).

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 in AEC Phase 1.[67]

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.[68]

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 on the order of one-tenth the emissions projected for the 640 MW combined cycle block.[69] 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, the proposed 640 MW combined cycle project will result in an unmitigated increase of 11. 1 tons per year of $PM_{10/2.5}$ emissions. . The localized deposition of this $PM_{10/2.5}$ 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.

3. The FSA inadequately documents "cumulatively considerable" impacts from construction and operation of the proposed project, and fails to acknowledge unmitigatable local dust and PM_{10} impacts on the Los Cerritos Wetlands and local residents – local impacts will not be adequately mitigated with regional PM_{10} offset credits.

The Trust incorporates, by reference, the Opening Testimony for the Part 2 Evidentiary

---

[67] 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).

[68] 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).

[69] 0.14 × (400 MW/600 MW) = 0.093 (9.3 percent).

Hearing[70], and summarizes that testimony below.

During the hearing, neither the Applicant nor Commission staff challenged the facts presented in the Trust's testimony.[71] In fact, the only discussion of the Trust's testimony was a very brief staff discussion to clarify whether the conclusion that the FSA Part 2 used a "ratio theory" for estimating cumulatively considerable impacts of PM10 from operation of the proposed AEC. The staff author of the Air Quality section stated "no."[72] However, the response misses the point that it was a conclusion in the Biological Resources analyses wherein the FSA found there were no cumulatively considerable impacts from dust because the proposed AEC was not expected to emit dust. As noted above in section 2(c)(iii) above, emissions of dust in the form of particulate matter from operation of the proposed facility will be a significant cumulatively considerable impact to Biological Resources. Further, as stated in the Trust's Opening Testimony, regional mitigation is inadequate to minimize impacts to local wetlands. As stated above, local impacts from dust accumulation in the wetlands could be minimized with alternatives that achieve the basic objectives of the project.

4. Conclusions

The FSA is inadequate for the following reasons:

- *Authorization of 1,040 MW of gas-fired generation at the Alamitos site violates climate action LORS evaluated in LTPP process that led to authorization of only 640 MW of gas-fired generation at the site by the CPUC.*
- *The 640 MW combined cycle unit cannot meet 20-minute response time requirement in CAISO Tariff Section 40.3.1.1.*
- *Neither AES or Commission staff have proposed offsets for the increases in $PM_{10/2.5}$ or VOC emissions caused by the project.*
- *$PM_{10/2.5}$ impacts on wetlands cannot be mitigated with regional offsets.*

[70] Exhibit 3076, TN 214882, Trust Opening Testimony pp 10-21
[71] TN 215108
[72] Ibid at page 96, line 4 to p.98, line 12