STATE OF CALIFORNIA
ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

Preparation of the	)	Docket No. 95-ER-96A
1996 Electricity Report (ER 96)	)	
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Addendum To *ER 96* On the Integrated Assessment of Need And Associated Need Criteria

I. Introduction: Need Conformance Requirements and *ER 96*

The Energy Commission has the exclusive authority to certify thermal power plants of 50 megawatts or more in California. (Public Resources Code section 25500.[1]) As a general matter, in order to certify a plant the Commission must find that it is in conformance with the "integrated assessment of need" (IAN) contained in the most-recently adopted ***Electricity Report*** (***ER***). The finding of conformance or nonconformance is made pursuant to criteria (often referred to as "demand conformance criteria," "need criteria," or a "need test") that are also established in the ***ER***. (Sections 25305(a)-(f), 25308, 25308.5, 25309(b), 25523(f), 25523.5, 25524(a), 25540.6(a)(5), 25541.)

The contents of the IAN are not specified with precision in the Warren-Alquist Act. Instead, the Act states that the IAN is to be "determined pursuant to" a series of statutory provisions that call for:

1. An evaluation of the environmental, economic, and health and safety implications of constructing and operating proposed power plants and transmission lines (Section 25305(a));

2. A discussion of reasonable alternative technologies (Section 25305(b));

3. Five- and 12-year forecasts of the demand for electrical energy and capacity, considering energy conservation, load management, and other demand-reducing measures (Section 25305(c));

[1] All section references are to the Public Resources Code, unless otherwise noted.

4. An assessment of methods that can reduce the forecasted electricity demand (Section 25305(d));

5. A statement of the level of electrical demand that will reasonably balance:
   - Requirements of state and service area growth and development
   - Protection of public health and safety
   - Preservation of environmental quality
   - Maintenance of a sound economy
   - Conservation of resources (Sections 25305(e), 25309(b))

6. A discussion of the probable capacity additions consistent with the level of demand (Section 25305(f))

The heart of the IAN is the balancing of the five factors set forth in Section 25309(b) and listed in item five above. The analyses of demand and potential demand-reducing measures, and of the effects of supplies potentially available to meet demand, inform the assessments and balancing of the five factors. As was indicated in ***ER 96***, the IAN factors remain relevant in today's increasingly competitive electricity market. (***ER 96***, pages 72-73.)

ER 96 is the most recently adopted ***Electricity Report***. The integrated assessment of need in ***ER 96*** recognized that "the state's primary electricity challenge is to develop a fully competitive market among generators and other service providers, without losing the benefits gained from state energy policies in the past twenty years . . . government should not prevent investors from putting their money where they believe the investments will be competitive," as long as the financial risks of the investments are borne by the investors and not by ratepayers. (***ER 96***, pp. 67, 68.) In the current electricity market, new power plants are being proposed by independent developers, not, as was the case in the past, by investor-owned or municipal utilities whose ratepayers had ultimate financial responsibility. As a result, ***ER 96***, like its predecessor ***ER 94***, contains a simple need test:

> [D]uring the period when ***ER 96*** is applicable, proposed power plants shall be found in conformance with the Integrated Assessment of Need (IAN) as long as the total number of megawatts permitted does not exceed 6,737.
> (***ER 96***, p. 72.)

The 6,737 megawatt number was based on a straightforward comparison of likely demand with potential supplies. (***ER 96***, pages 70-71.) The Commission also recognized that changing circumstances might require revisions to that test:

> If during the pendency of ***ER 96*** the total number of megawatts permitted exceeds 6,737 . . . the ***ER 96*** Standing Committee shall re-assess the situation and recommend appropriate action for the Commission . . . . ***ER 98*** may be delayed or eliminated. If there is no ***ER 98,*** then interested persons may petition the ***ER 96***

> Standing Committee to recommend revisions to the need test.
> (***ER 96***, p. 72.)

II. The *ER 96* Standing Committee's November 5, 1998, Order

On November 5, 1998 the ***ER 96*** Standing Committee (Vice Chair Rohy, Presiding Member, and Commissioner Sharpless, Associate Member) issued an order that stated:

> Since the adoption of ***ER 96***, the competitive market has begun to function, and we now have actual operating experience against which to measure our expectations of how the market might work. In addition, the Commission currently has before it applications for a total of 2,763 megawatts of new power plant capacity, and current information indicates that we may receive applications for as many as 6,360 more megawatts during 1999. Because of the changes in circumstances since the adoption of ***ER 96***, it is appropriate to consider revising the ***ER 96*** need test.

(November 5, 1998, Order, p. 2.) The November 5, 1998, Order directed the Commission Staff to prepare and distribute a paper analyzing options for amendments to ***ER 96*** and to hold a workshop with interested participants. The Staff distributed its paper (Options for Modifying the ***ER 96*** "Need Cap" IAN Conformance Test) on November 18 and held the workshop, which was transcribed, on December 2. The Committee also invited interested participants to submit comments on the Staff paper and to propose alternatives.

III. Assessing the Factors In Section 25309(B)

When ***ER 96*** was adopted, the legislation that restructured the California electricity market had been in effect for less than six months and its implementation was only beginning. Since then, both the Independent System Operator (ISO), which allocates access to most of the state's transmission grid, and the Power Exchange (PX), which conducts a competitive power auction, have been activated; many investor-owned utility power plants have been divested to independent companies; and a competitive market is beginning to emerge. Although significant details associated with the restructured industry still need to be resolved, we believe that enough is known about the market to justify modifying the integrated assessment of need to foster the development of a more robust market. We therefore re-assess the five IAN factors in Section 25309(b) as follows. In doing so, we continue to believe that the most pressing task for state electricity policymakers and regulators continues to be fostering the development of a well-functioning competitive market.

Requirements of state and service area growth and development.

Additional power plants built without captive ratepayer responsibility for financial risks will help meet the physical need for new power and, by providing customers with more options, will improve the efficiency of the entire state economy. The ***ER 96*** IAN used capacity accounting for "physical need," i.e. an assessment of the minimum amount of capacity needed to keep the California system operational and reliable assuming that all power plants are dispatched at least cost. Yet as the new market has begun to operate, it now appears that generation adequate to meet the new market's physical demand is not enough to provide robust competition. In addition, bids have been asked and provided for differentiated services (e.g. kWh, ancillary services, replacement reserves.) The ISO discovered that when only the minimum amount of ancillary services capacity was being bid, bidders took advantage of the lack of competition to raise prices above what would have been a reasonable range. (Frank Wolak et. al., "Preliminary Report on the Operation of the Ancillary Services Markets of the California Independent System Operator," prepared by the Market Surveillance Committee of the California ISO, August 19, 1998, pp. 11 et seq.) In order to facilitate competition, a larger amount of capacity bid appears to be required so that "no one player can be pivotal in setting the market price by strategically withholding supply from that market." (ISO Market Surveillance Unit, Comments to FERC on Reports Regarding Ancillary Services Market Operation, September 4, 1998, p. A-2.)

How much more capacity might be needed so that prices would reflect competitive pressures, not market power? Although there has not been enough time for a well-developed, statistically-valid quantification of what constitutes adequate "bid sufficiency," ISO market power experts have developed a preliminary estimate that ancillary services bid sufficiency might begin to occur at 140 percent of demand in each hour and would probably be achieved by 200 percent of demand. (*Id.*) The finding that a potential abuse of market power exists unless there is greater generation bid for each differentiated component of supply than demanded, goes counter to the current 6,737 need cap.

Another market feature that would also help to lower prices during times when demand approaches (or exceeds) supply is demand-side bidding: a system whereby consumers could bid a price above which they would not take power. Demand bidding would allow consumers to reduce their power use during times of high prices. With less demand competing for available supplies, the potential for abuse of market power by the supply side, and the consequent rises in prices would not be as great. The demand-side part of the market is being developed, but it will not be fully functional for several years. During the period of market start-up, until there is a robust demand market component, it appears that we must rely more heavily on supply side adequacy to insure competitive prices. Naturally, such prices will be fostered only if new generation actually operates competitively; if new plants allow the development or exercise of undue market power, they will hurt, rather than benefit, the current situation.

Protection of public health and safety.

Construction of new power plants does not, in general and at this time, appear to pose a major threat to public health and safety. That is because the California Environmental Quality Act (CEQA) requires us in our siting cases to mitigate where feasible any significant adverse effects on public health and safety (including both individual and cumulative impacts), and if mitigation is not feasible the project must provide benefits that outweigh the adverse impacts. (Section 21081.)

Preservation of environmental quality.

Although location-specific impacts may vary considerably, regional and statewide air quality (including both regulated air pollutants and non-regulated emissions such as carbon dioxide and other "greenhouse gases") might be somewhat enhanced by the construction of new power plants. That is because (1) new plants are generally much cleaner and more efficient than the fossil-fired plants that operate today and that provide the majority of the state's power; and (2) most new power plants are required by law to "offset" their emissions of regulated air pollutants by reducing or shutting down emissions from existing sources. (Neither the offset requirement nor any other legal requirement applies to unregulated emissions such as carbon dioxide and other greenhouse gases.) With regard to other environmental impacts, as we noted in the previous paragraph, under CEQA if the Commission finds in any certification proceeding that there a plant would cause a significant adverse environmental effect (on air quality or any other aspect of the environment), the effect must be mitigated if feasible, and if mitigation is not feasible the Commission must find that the plant provides benefits that outweigh the adverse impacts.[2] (In addition, some environmental and system impacts may cross local boundaries; a situation best dealt with by a statewide authority.) As a general matter, then, construction of new plants should not result in undue environmental impacts and may actually enhance environmental quality.

The Commission will not allow plants to be built in a manner that threatens the environment. Under CEQA the Commission must assess and where feasible mitigate not only the significant adverse environmental effects of each new power plant seeking certification but also the cumulative effects of the plants in combination with other past, current and likely future projects (whether power plant projects or other types of projects). (Section 21083(b); CEQA Guidelines, Title 14, California Administrative Code, sections 15130(b), 15355.)

Maintenance of a sound economy.

Reliable electric service is necessary for a sound economy. Moreover, the power generation

[2] This requirement of CEQA is a key element that allows us to say that construction of new power plants will generally not cause undue health, safety or environmental effects.

sector of the economy, and indeed the economy as a whole, is most efficiently served by a competitive market. Indeed, this factor is one of the principal reasons that the Legislature restructured the electricity market. The driving forces behind the legislation were the fact that electricity rates in California were significantly higher than most other regions of the U.S., and the belief that a competitive generation market would help reduce prices and thereby improve the California economy. In this regard, we have discussed above under "Requirements of state and service area growth and development" the initial experience of the ISO, through which it appears that additional generation capacity and demand elasticity is important to increase the robustness of the competitive market. However, if a new plant allows a supplier to abuse market power by acting anti-competitively, the addition would not foster a sound economy.

Conservation of resources.

Resources are most efficiently allocated and used by competitive markets. We have previously stated that because new power plants are generally more efficient than the existing plants whose operation they may displace, construction of new plants will usually conserve fuel and reduce air emissions. Effects on the conservation of other resources, such as water and land, are less certain, but under CEQA any adverse effects must be mitigated (or outweighed).[3]

Balancing the IAN factors.

The previous discussion indicates that under the current circumstances in California, construction of new power plants will tend to be either neutral or positive with regard to each of the IAN factors discussed above. Thus new construction serves a balance of the factors, especially in light of the paramount importance of continuing to foster the development of a fully-competitive market *, assuming that the new construction is operating competitively."* With that determination of the IAN, we now turn to development of appropriate need criteria.

IV. Options for Revised Need Criteria

The fundamental tenet of the ***ER 96*** need assessment is that so long as ratepayers do not face financial risks from new power plants, "government should not prevent investors from putting their money where they believe the investments will be competitive." (***ER 96***, page 68.)[4]

[3] Energy conservation is a special case under the Warren-Alquist Act. The statute states that "[c]onservation, load management, or other demand-reducing measuresreasonably expected to occur shall be explicitly taken into account only in the determinations made [on the ***ER's*** forecast of electricity demand], and shall not be considered as alternatives to a proposed facility during the siting process . . . ." (Section 25305(c).) "[D]emand-reducing measures reasonably expected to occur" are referred to as "Committed DSM" in ***ER 96***. By implication, other demand-reducing measures, above those accounted for in ***ER 96,*** may be considered as alternatives in siting cases.

Nevertheless, the current 6,737 MW need test cap operates as an absolute restriction on the ability of investors to develop new power plants. The cap was adopted in part because the Commission was not sure how the market would develop and because the Commission wanted to have a mechanism to allow time to review the situation, if necessary, before an unduly large number of power plants might be approved. An even more important concern was whether market incentives would be adequate to entice any new entrants. (***ER 96*** states that it is "extremely unlikely" that the number of megawatts permitted during the pendency of ***ER 96*** would exceed 6,737.) It is encouraging to see that the development of the competitive generation market -– supported, we hope, by the need test in ***ER 96*** -- appears to have stirred California power plant developers out of their lengthy building hiatus. Now, in light of our policy to encourage a well-functioning competitive market by removing unnecessary regulatory barriers, and our conclusion that construction of new power plants will serve the achievement of the five IAN factors, there is no justification for retaining the current cap.

The Staff's November 18, 1998, paper assessed the pros and cons of four options for revising the cap. We discuss each one below.

1. Maintain the need cap until the next ***ER*** is adopted

This option would continue to limit the development of new competitive generation. It would probably thereby continue to encourage a rush to file applications with the Commission in an attempt to secure certificates before the cap is exceeded, even if the applications are premature or incomplete. All participants in the proceeding appear strongly opposed to this option, and so are we.

2. Eliminate the need cap until the next ***ER*** is adopted

This option had considerable support at the workshop. It would eliminate any potential scarcity caused by the current need cap and might reduce the pressure that developers may feel to file applications quickly with the Commission before the cap is exceeded. However, some participants argued that if the cap were simply eliminated, with nothing to take its place, it might eliminate the link between the IAN and the certification of new energy facilities required by Section 25523(f).

3. Modify the cap based on an updated numeric analysis

The ***ER 96*** need cap was based on an analysis of demand and supply data available in 1994 and 1995. The analysis could be updated using more current data and assumptions and a new cap established.

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[4] That fundamental tenet was based in part on the assumption that "it is very unlikely that any plant for which ratepayers will be financially responsible will be built" (***ER 96***, page 71), an assumption that shows no signs of being incorrect.

This option is undesirable for several reasons. First, even if the cap number increased, investment decisions would still be limited by government rather than made by the market. Second, it would probably take an unduly large amount of time and effort, on the part of both the Commission and by market participants from whom new data would be collected, in order to establish a new cap. Third, some of the analytic tools used in ***ER 96***, which were developed in order to assess regulated monopolies, may not be appropriate for the current markets in California and the western region. As the workshop participants unanimously recommended, we decline to adopt this option.

4. Modify the rationale for the need cap – the IAN – and change or eliminate the cap based on the new IAN

We have re-assessed the five IAN factors above. Our conclusion that construction of new power plants facilitates the achievement of those factors. Two primary approaches for new need criteria reflecting the new assessment were discussed in the proceeding.

a. "Bid Sufficiency" cap: 140% of demand

In light of the apparent desirability of increasing generation supplies to at least 140 percent of demand, it has been suggested the Commission should find all power plants in conformance with the IAN until the level of statewide supplies reaches that level. This approach would have the advantages of being directly tied to one of the key elements of the IAN, and it would reflect the characteristics and needs of market operation as they are currently understood in California. However, it is very difficult to determine how "supply equal to 140 percent of demand" should be established. For example, it is unclear whether demand should be measured as the absolute highest demand, even if that demand exists for only a few hours in a year, how demand bidding should be accounted for, and how available supplies be assessed; moreover, there are different markets, such as the markets for energy, voltage support and the like, and different demands and potential supplies in each. In any event, our policy of allowing, to the greatest extent feasible, the market to make power plant investment decisions militates against any numeric limit.

b. Require case-by-case showings of conformance with the IAN

In another approach under this option, the Commission would find any new plant needed if the evidence in an individual siting case showed that the plant would foster a net benefit, we would deem any new power plant in conformance with the IAN unless the Commission made a finding in an individual siting case that there would be a net system detriment caused in whole or in part by the plant and that the detriment could not be reasonably mitigated. An applicant would demonstrate, for example, that a proposed facility would provide air quality benefits greater than required by law, promote system reliability, or maintain a sound local economy. Intervenors could also introduce evidence; for example, while a new project might make a general case that it will contribute to

statewide growth and development, there might be local concerns about whether a power plant's use of emission offsets and water resources would restrict other kinds of development. Or an applicant that owned other power plants might be challenged to demonstrate why the new project would not contribute to potential abuse of market power.

This approach would have considerable merit because it would directly tie IAN conformance findings in siting cases to all of the Section 25309(b) factors, while also allowing potentially unlimited development of competitive additions to the market. On the other hand, formulating and applying the test would be quite difficult.

One key difficulty is deciding how to express the test. We could express it in no more detail than we have here: on balance, does a proposed facility harm or hinder the achievement of the Section 25309(b) factors? That would leave open, for resolution in each siting case, issues such as defining "harm" and "benefit," determining how each should be measured, and deciding how they should be balanced. That could make siting cases uncertain and open-ended, and thus potentially burdensome to both applicants and intervenors. Each of those matters would take considerable time and effort. On the other hand, if we try to make the test more specific before adopting it as part of an ***ER 96*** addendum, a potentially even longer and more complicated public process, with the participation of many parties (including the ISO and municipal utility transmission system operators, for the impacts of a project on the interconnected system are in part determined by the market rules set by system operators), would probably be necessary. Part of the problem is that several matters affecting the IAN factors are in substantial flux; they include the extent to which many power plants, formerly belonging to the investor-owned utilities and now divested, will be refurbished and if so how they will operate; how the current nuclear plants will operate after the end of the competition transition cost (CTC) recovery period; the availability and cost of ancillary services such as reserves and voltage support; and the ISO's ongoing efforts to allocate fairly the costs of both congestion and new transmission within the grid that may be affected by new facilities.

V. Adopted Need Criteria

It is clear that no option is perfect. What is clear is that the current numerical cap must be removed as an impediment to the development of a robust, competitive market. For the reasons we have discussed above, it is inappropriate to select a higher cap number, and there are too many drawbacks to a qualitative "net benefit" test. We believe that, at this time, we can rely on the environmental and other analyses in our individual siting cases, independent of a numerical need criteria, to ensure that the public policy goals embodied in each one of the IAN factors is achieved. *Therefore, the Commission hereby establishes a rebuttable presumption, to be applied in every power plant certificate case during the pendency of this **ER**, that the plant is in*

conformance with the IAN.

However, a key assumption in our determination that new power plants are in harmony with a balance of the IAN factors is that new plants will operate competitively.

We must be mindful of the fact that the restructured market depends entirely on competition for the protection of consumer interests in low-cost and efficient generation service. The Commission may consider in each siting case any compelling evidence, provided by parties, that a proposed facility would actually harm competition. For example, the ISO might provide data or informed estimates on the expected hours of operation of a proposed facility in relevant market areas; together with information on the number of other facilities in those areas and their ownership, assessments of market power such as the HHI index might be constructed and the facility's effects on competition and market power could be evaluated. Because we firmly believe that in most cases new facilities will enhance competition, we are limiting the need for litigation of this issue by establishing a rebuttable presumption of conformance with the IAN; the burden will be on any party to present compelling evidence showing that a plant would significantly harm competition. If such evidence is persuasive, the Commission would find the plant to be not in conformance with the IAN, during this critically important period of transition to full competition.

VI. Effective Date

Any changes to ***ER 96*** should become effective as soon as possible, in order to provide certainty and stability to all stakeholders. Therefore, this addendum will become effective upon docketing, and the revised need test will apply to any power plant for which an application for certification is filed after the effective date. The revised test shall remain in effect until a new ***ER*** is adopted or until the Commission takes action, upon the recommendation of the ***ER 96*** Standing Committee, to make further amendments. The Commission intends to adopt a new ***ER*** or otherwise to consider revising the need test adopted here no later than December 31, 2000.