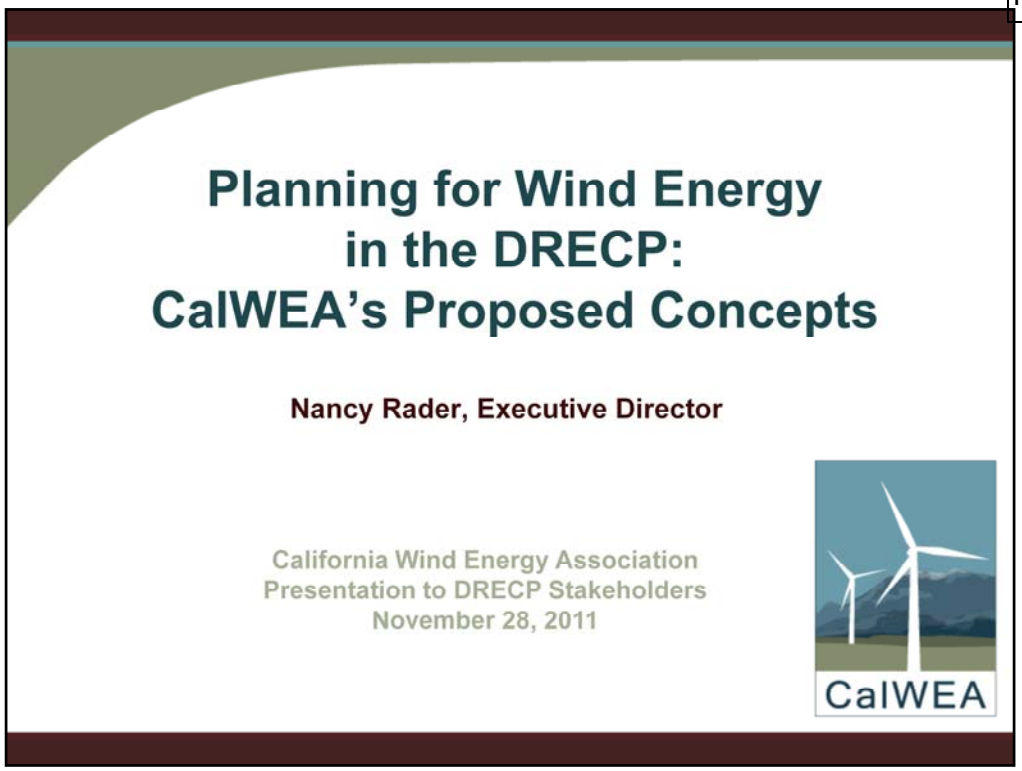
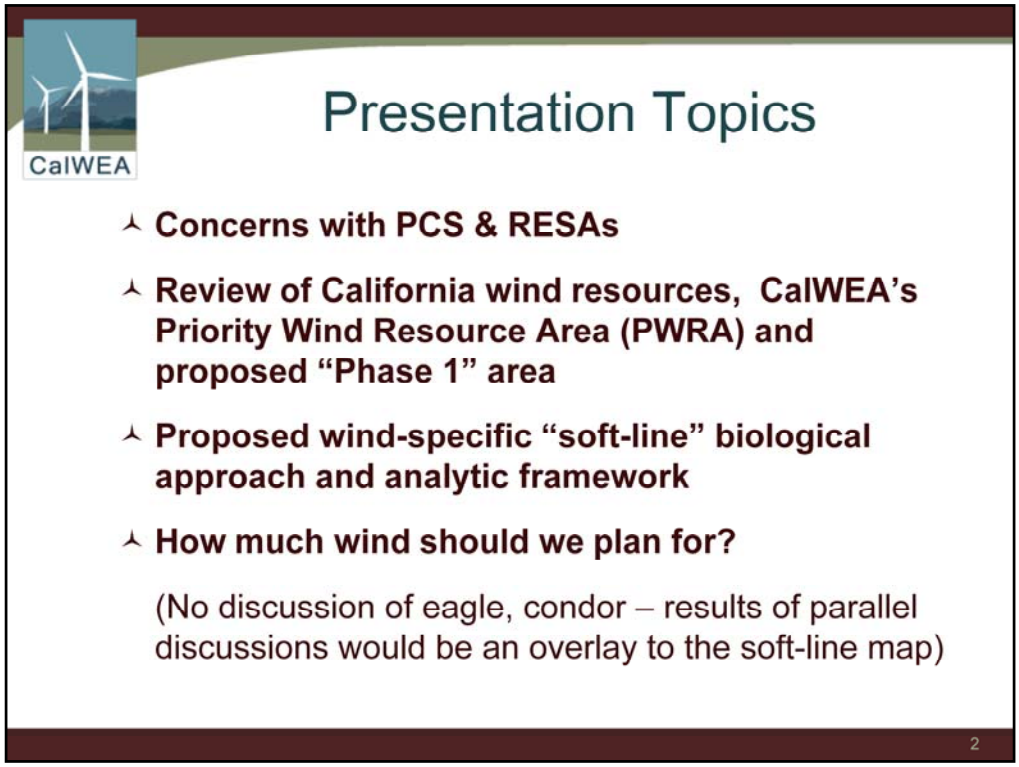
DOCKET
09-RENEW EO-1
DATE Nov. 28 2011
RECD. Dec. 05 2011



(This document also serves as CalWEA's comments on the DRECP Preliminary Conservation Strategy.)

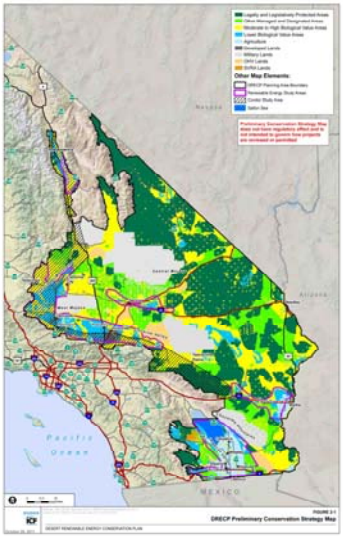


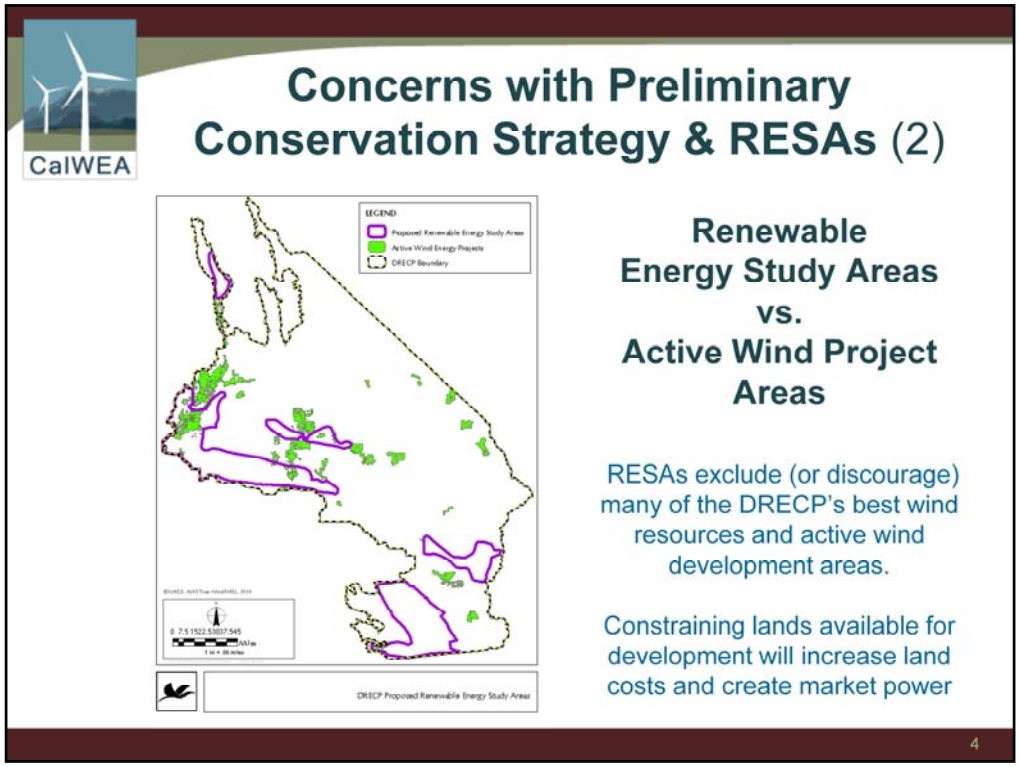
There is nothing really new in the presentation material -- it either repeats things we've been saying in the past year, or is consistent with those themes.

Concerns with Preliminary Conservation Strategy & RESAs (1)

Insufficient recognition of:

- best wind resource areas
- wind's limited terrestrial footprint / compatibility with terrestrial sensitivities
- numerous challenges in developing wind projects, requiring greater flexibility
- importance of market competition to achieving GHG -reduction goals





This slide shows areas of current wind project developments (in green), indicating the areas that developers have identified as the most promising, each spending 100's of thousands of dollars in the process. You can see that the RESAs do not include the majority of these areas.

Assuming that RESAs are intended to contain development to these areas (or to provide streamlining benefits only in these areas – meaning it will be a tough slog outside of these areas), they exclude many of the DRECP's best wind resources and active wind development areas.

It is also important to recognize that when you constrain the lands available for development, land owners in the identified areas will increase rent and developers who secure those lands will have greater market power – both of which will drive up the cost of achieving our GHG-reduction goals.

Concerns with Preliminary Conservation Strategy & RESAs (3)

- Vast "moderate to high biological value" area
- No recognition of variation or particular sensitivities within
- All of equal value for mitigation, conservation?
- Greater definition would indicate areas compatible with wind development

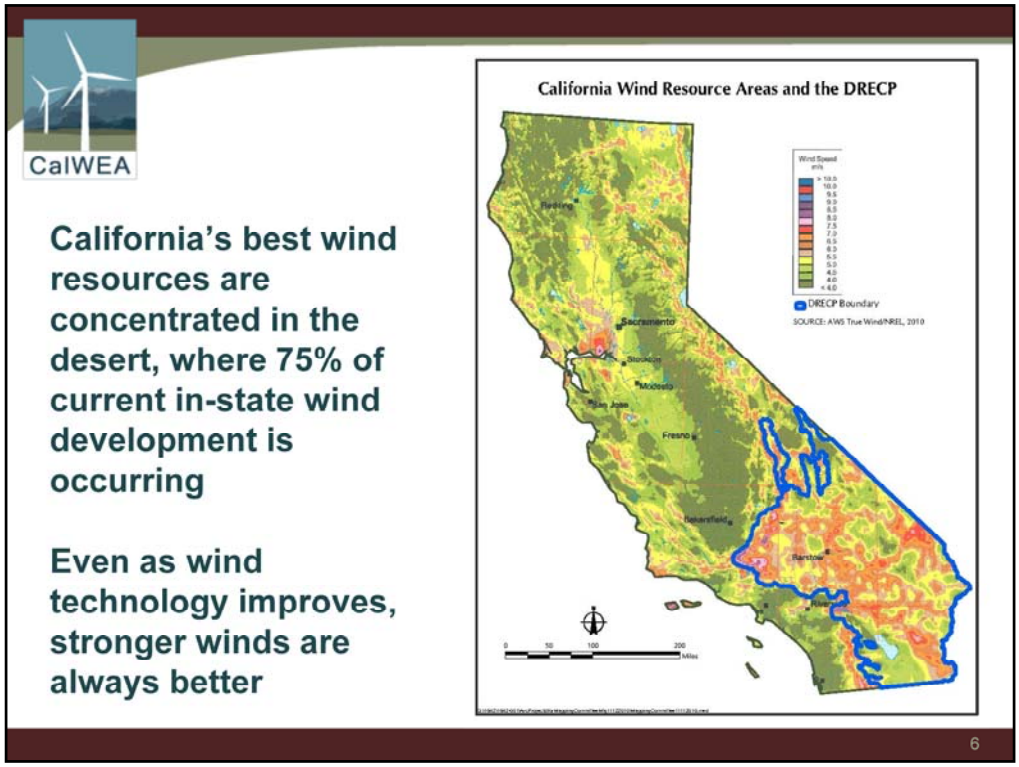
5

This is the PCS map of "moderate to high biological value" areas – the vast majority of the DRECP area.

The solid shade of yellow presumes that there is no variation within this area – no areas more sensitive than others

Are all areas of equal value for mitigation, conservation? The considerations going into the reserve design are much more refined than this.

Greater definition would indicate areas that are more or less compatible with wind development (depending on the specific sensitivities).

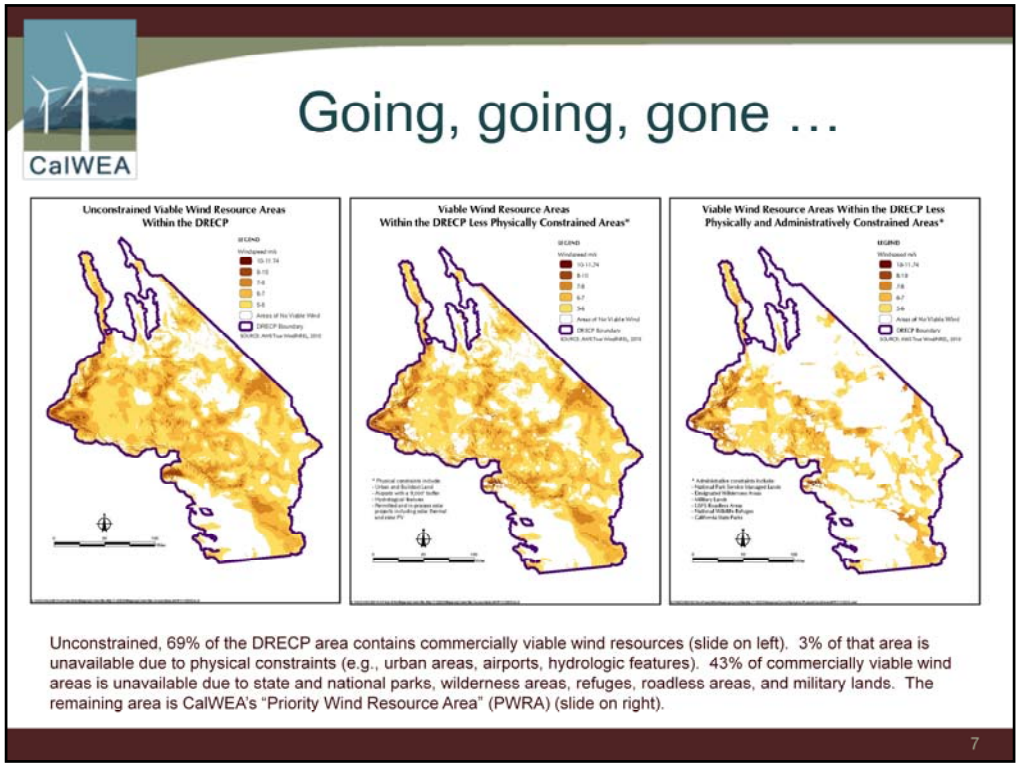


So, to get started on the approach that we are proposing as an alternative to the PCS and the RESAs, I wanted to review the state's wind resources overall …

As indicated by the orange-to-red shades, California's best wind resources are concentrated in the desert, where 75% of current in-state wind development is occurring.

Stronger winds are always better, particularly because the power in the wind is a cubic function of the wind speed. For example, if the wind speed doubles, the energy output will increase by a factor of 8.

Wind speed is everything. Even as wind technology improves, you can always get more energy out of a windier site.

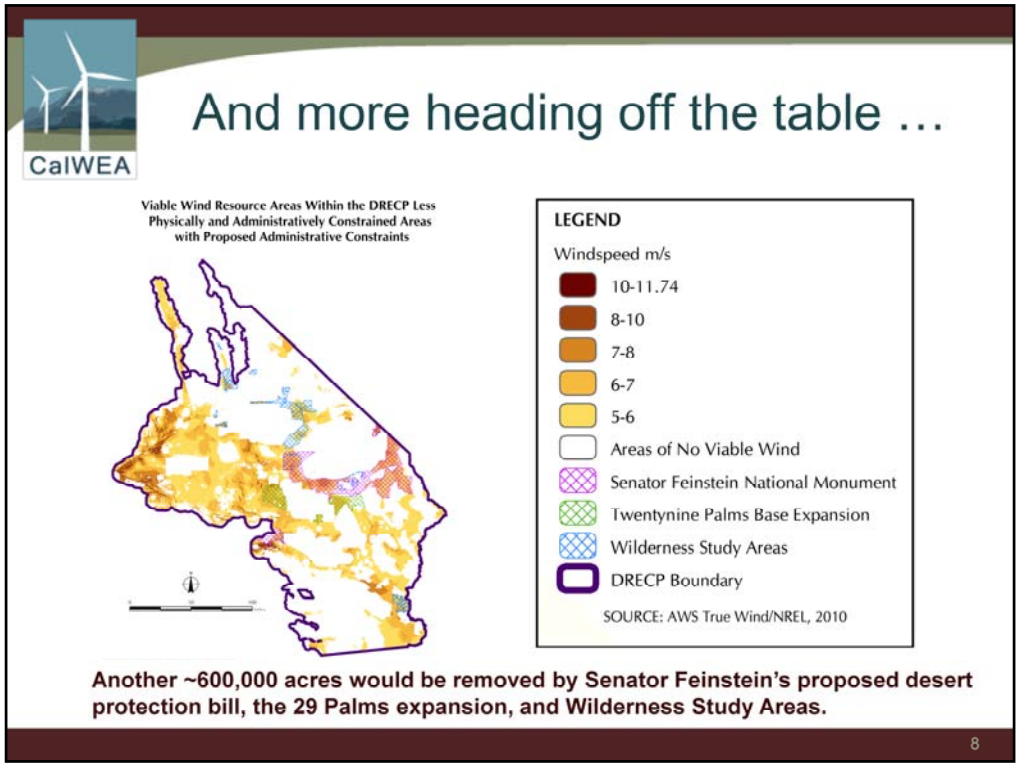


These slides show the wind resources in the DRECP area, and that close to 50% of those windy areas are already off the table for development…

- The slide on left shows that, unconstrained, 69% of the DRECP area contains commercially viable wind resources
- The middle slide removes 3% of that area which is unavailable due to physical constraints (e.g., urban areas, airports, hydrologic features).
- The right-hand slide removes 43% of the viable wind area, which is unavailable due to designations for state and national parks, wilderness areas, refuges, roadless areas, and military bases.

The remaining area – that same slide on the right -- is what CalWEA calls the "Priority Wind Resource Area" or PWRA. These are the areas we think should be protected for potential wind energy developments in the DRECP process.

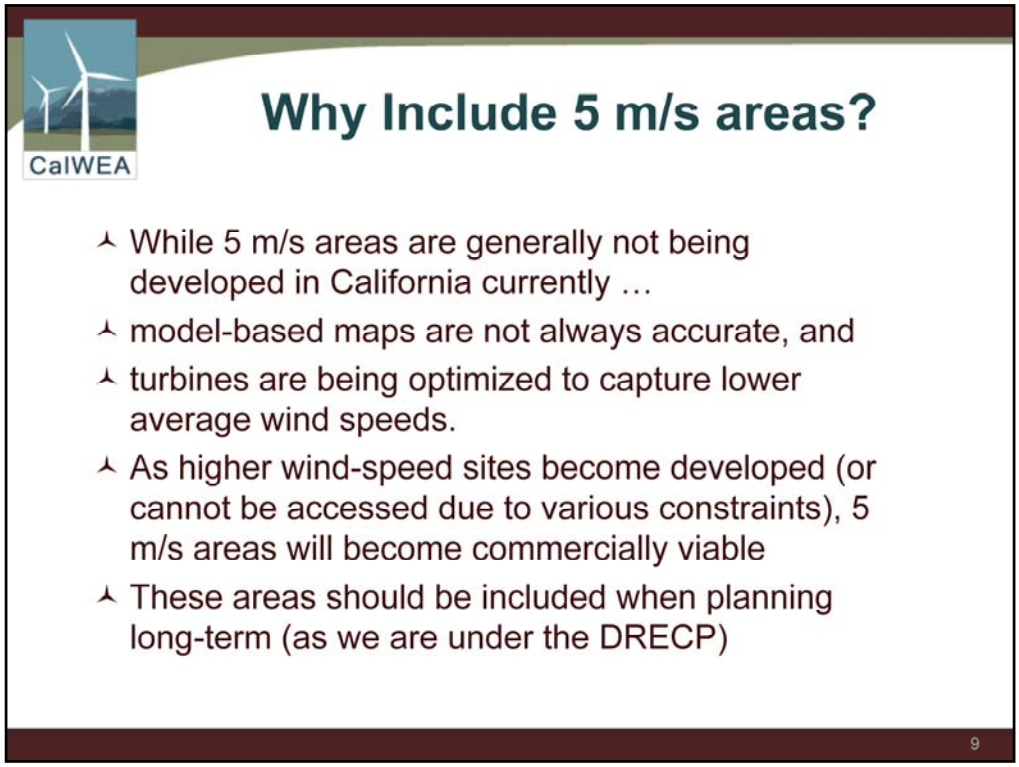
Given how much desert land is already unavailable for wind (and other types of) development, and the vast areas already designated for environmental purposes, we believe that the DRECP should focus the conservation plan primarily on enhancing those areas rather than taking even more land off the table for development.



However, as we all know, additional lands are being proposed for protection against development …

Another ~600,000 acres would be removed by Senator Feinstein's proposed desert protection bill, the proposed 29 Palms base expansion, and Wilderness Study Areas.

We propose that we confirm, in the DRECP process, that the areas identified under Senator Feinstein's desert protection bill are the highest-priority areas for conservation. If they are, then perhaps those are the areas we should focus on protecting under the DRECP. If they are not, then perhaps we need to have a conversation with the Senator, because those areas contain some very good wind resources, and we have to be very selective about the additional areas that are taken off the table … if we want a renewable energy future.



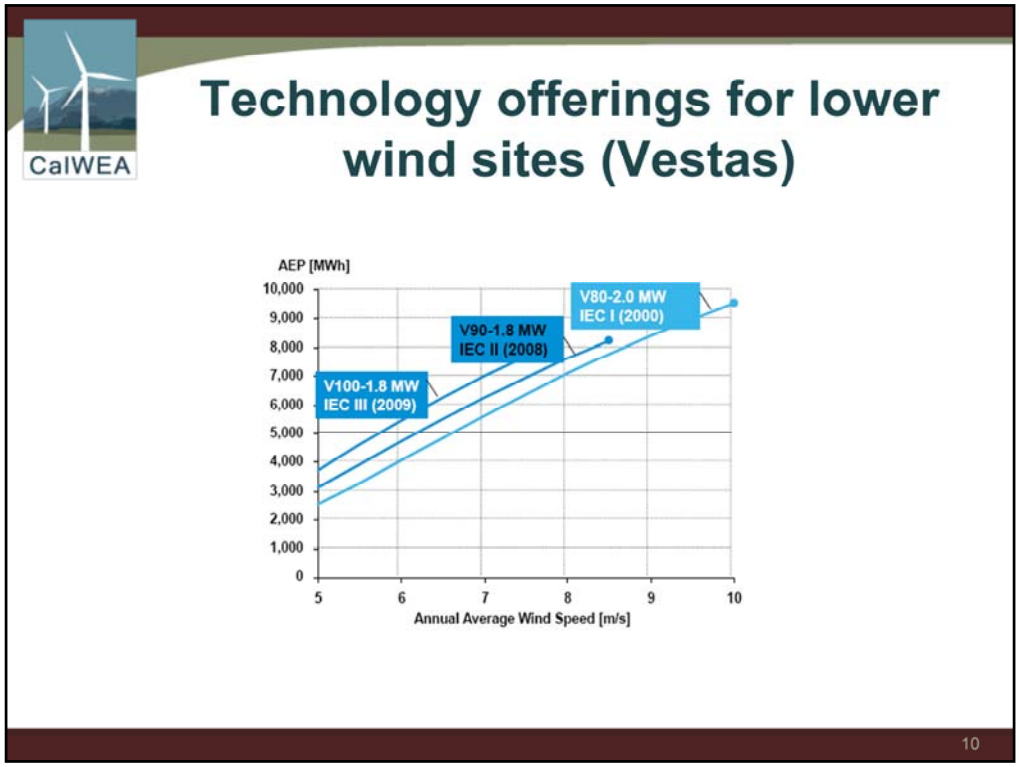
Our PWRA includes lands with wind resources down to 5 meters/second, even though those areas are not generally being developed in California today, because …

Model-based maps are not always accurate – when met towers are installed to actually measure the wind in particular places, substantial differences are occasionally found (sometimes as much as a full wind resource class or more).

In addition, turbines manufacturers are working to optimize turbines to capture lower average wind speeds.

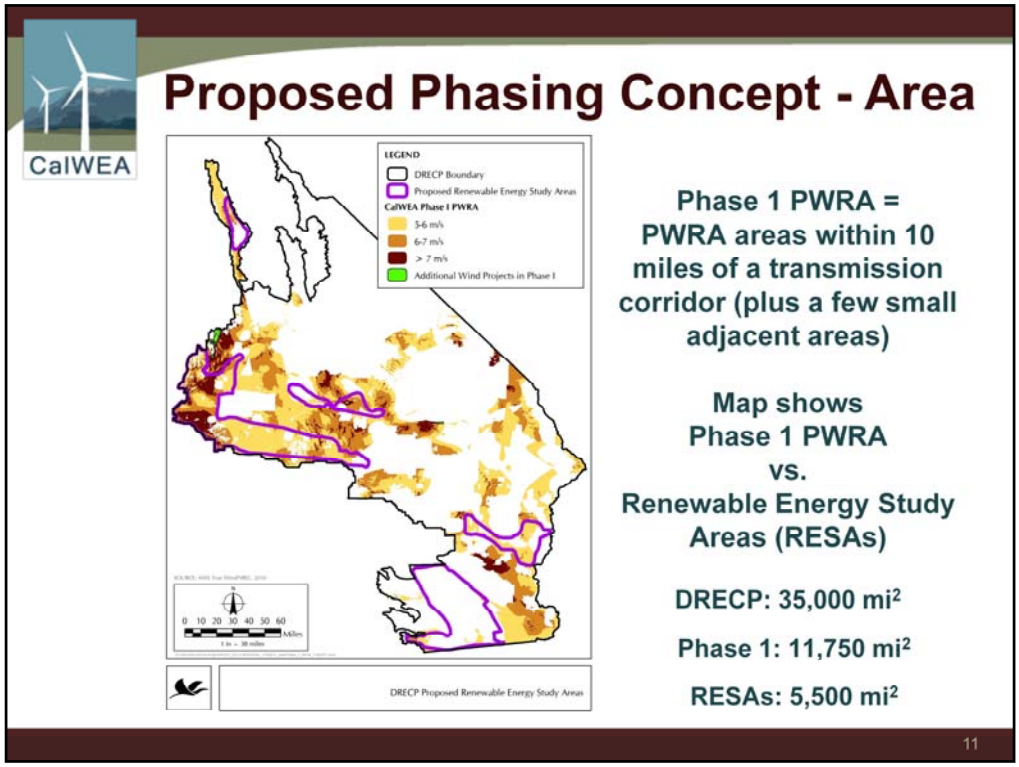
As higher wind-speed sites are developed (or if they cannot be accessed due to various constraints), 5 m/s areas are expected to become commercially viable.

These areas should be included when planning long-term, as we are under the DRECP.



This slide shows how Vestas' newer turbines capture more energy from the same wind speeds, making lower-wind-speed sites more viable.

The diagram also shows that higher wind speeds are always more desirable.



While we believe that wind development should not be foreclosed within the entire PWRA, we are open to the phasing of the priority wind resource area (PWRA) …

Phase 1 would be PWRA areas within 10 miles of a transmission corridor (plus we added two very small adjacent active project areas that fell just outside of10 miles)

This map shows the “Phase 1 PWRA” – everything in the brownish tones -- and the RESAs:

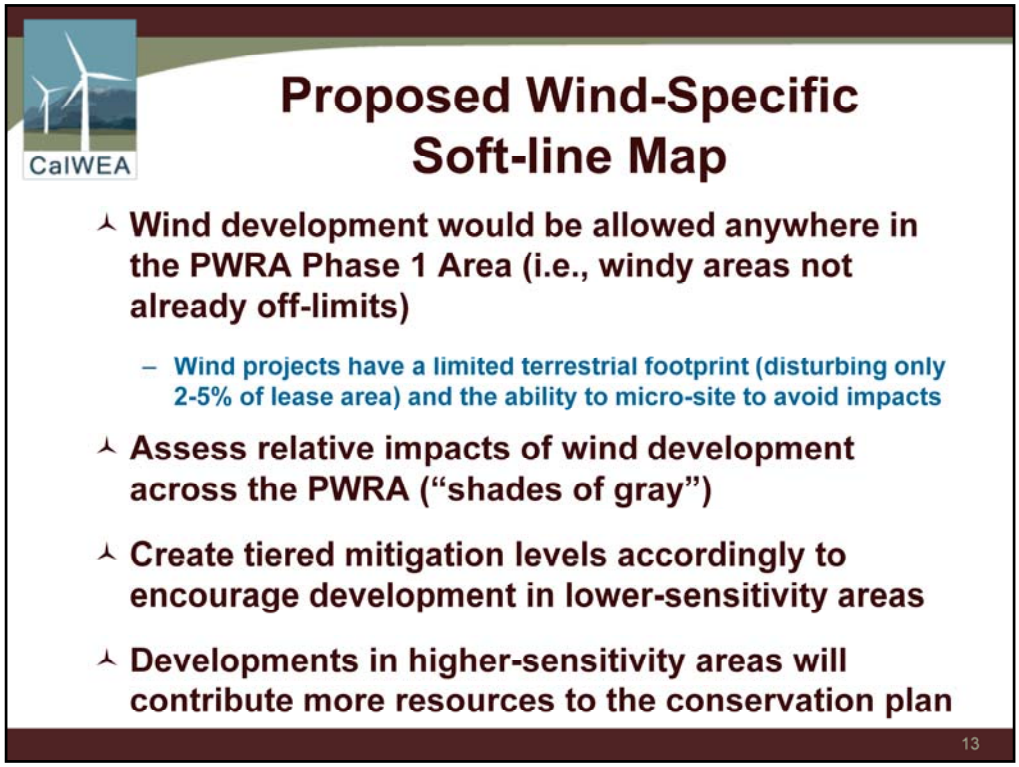
As compared to the total DRECP area of 35,000 mi^2

…the Phase 1 area is 11,750 mi^2

…compared to the RESAs which total 5,500 mi^2 – but, as you can see, much of the RESA area does not include viable wind areas, and many viable areas are not within the RESAs.

Proposed Phasing Concept – Phase 2 Trigger

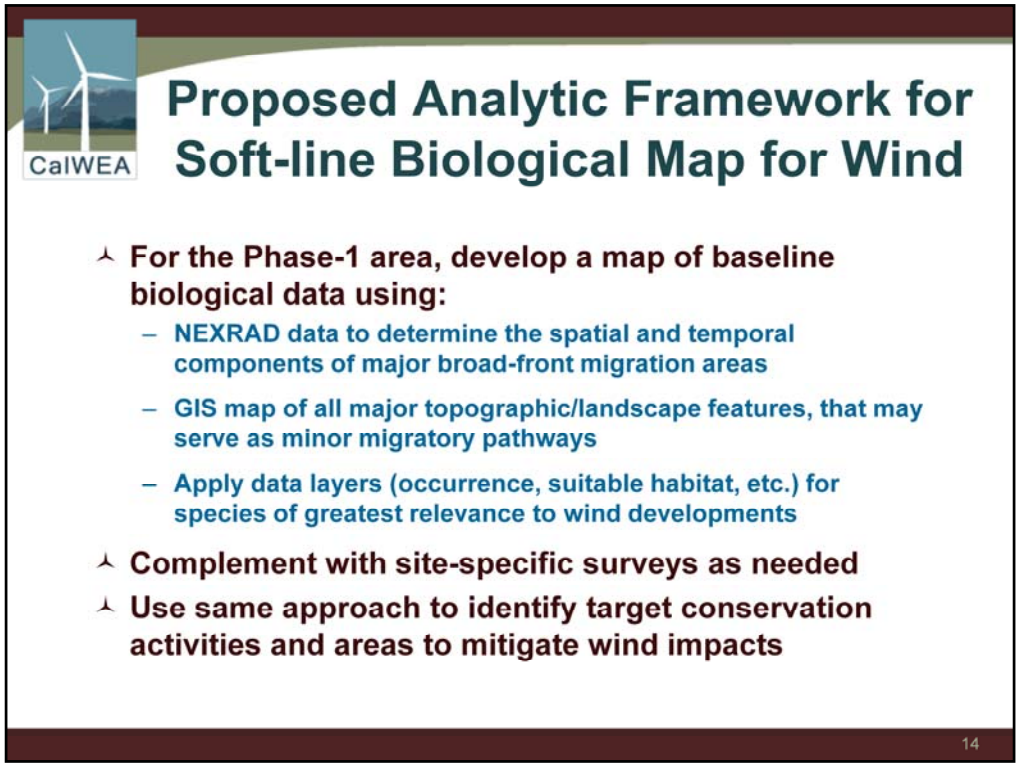
- No development would occur in the Phase 2 area until at least 2020, however, there would be a mandated revisiting of Phase 2 areas in 2017, with a decision made no later than 2020.
- The decision whether to open up some or all of the Phase 2 area would be based on additional environmental data, experience developing in Phase 1 areas, the state of renewable energy market competition, achievement of the state's clean energy goals, and other factors.
- The Phase 2 area would be avoided in reserve design unless deemed compatible with wind.



CalWEA has been proposing all along that wind development be allowed in virtually all windy areas not already off-limits in recognition of the fact that wind projects have a limited terrestrial footprint (disturbing just 2-5% of the leased area) and the ability to carefully micro-site turbines to avoid impacts.

We would assess the relative impacts of wind development across the PWRA Phase 1 area (identifying some areas as being less environmentally sensitive and other areas as more sensitive – various "shades of gray") and create tiered mitigation levels accordingly to encourage development in the lower-sensitivity areas and to identify more valuable conservation opportunities in the higher-sensitivity areas.

If the variety of factors that go into successfully developing a wind project lead a developer to a higher-sensitivity area, the cost of mitigation will be higher, providing more resources to fund the DRECP conservation plan.



More specifically, within the PWRA Phase 1 area, we would assess the relative impacts of wind development …

The DRECP consultants would develop a map of baseline biological data that would …

--incorporate NEXRAD data to determine where and when major broad-front migration occurs

--incorporate GIS maps of all major landscape features that might serve as minor migratory pathways, and

--apply all of the data layers for species of greatest relevance to wind developments (those species are the 16 or so that we proposed be included on the Covered Species list – they are the species that desert wind developments are frequently required to address now)

To the extent that we are not able to conduct a sufficient meta-analysis, we would require site-specific surveys (although one of the important goals of the DRECP is to streamline the need for such surveys so that should remain an important goal).

We would use this same approach to identify conservation areas and mitigations that address wind-specific impacts.

As I mentioned, we believe that allowing for a renewable energy future requires fashioning a conservation plan that primarily seeks to improve conditions within existing conserved areas. Any new conservation areas should be limited and, as much as possible, should be outside the PWRA area.

Last week, ICF presented a reserve design approach that contemplated "multiple use conservation zones." We believe this is an excellent concept to use for desirable conservation areas that are within the PWRA.

The small ground-disturbance footprint and the ability to micro-site turbines to avoid impacts creates the opportunity for wind developments to be compatible with reserve areas – wind developments can even assist in securing those areas by precluding developments of other types on the lands that we lease, and project owners can assist in managing the land – e.g., by preventing unauthorized OHV use.

We should not presume incompatibility. If wind developments are excluded from reserve areas, the exclusion should be based on evidence of incompatibility with reserve design goals. A recent study found, for example, that desert tortoise populations were doing quite well in a wind farm area.

So, why are we asking that so much land remain available for wind development?

Because many areas will prove infeasible due to numerous development issues that the DRECP will not likely address …

•First, we have to confirm what the models show the wind resource to be (is it the same class, is it consistent, etc.)

•Avian conflicts – again, eagle and condor restrictions would be an added overlay to the map we are proposing here. Right now, developers survey for eagle nests and do not develop nearby … it is very likely that those surveys and setbacks will continue if not expand.

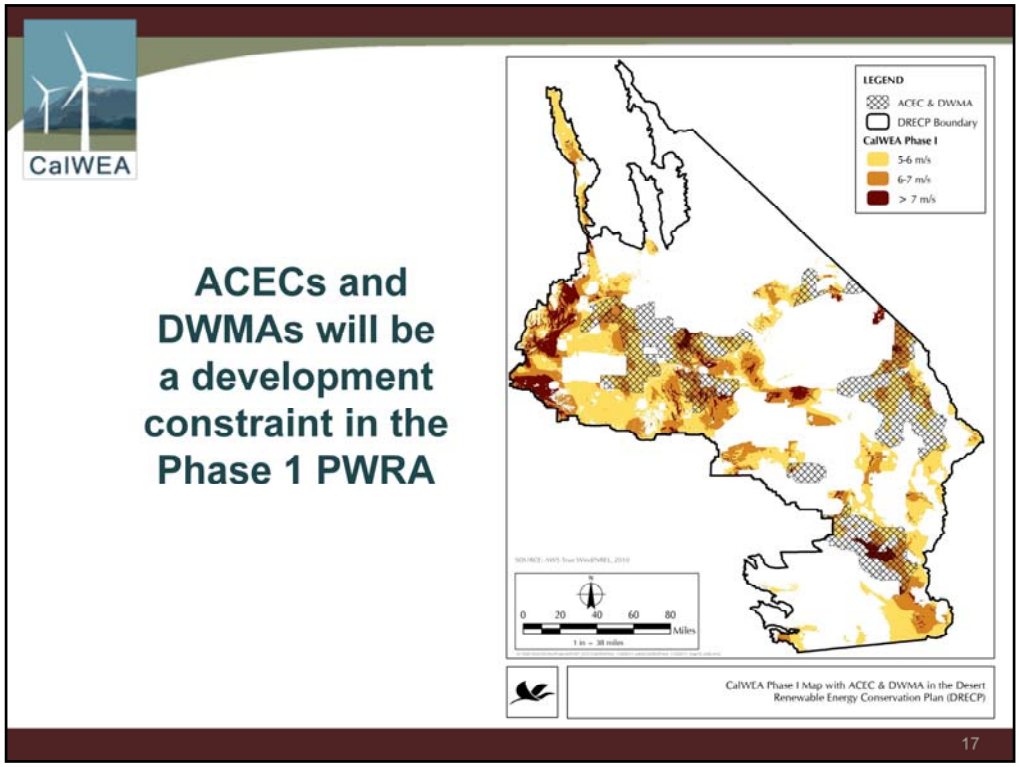
•We have huge military flight-path and radar conflicts in the DRECP area

•We have to be able to find land owners willing to lease their land

•The site has to have appropriate geotechnical characteristics to be able to construct and host the turbines

•And we have to be able to access nearby transmission lines and substations

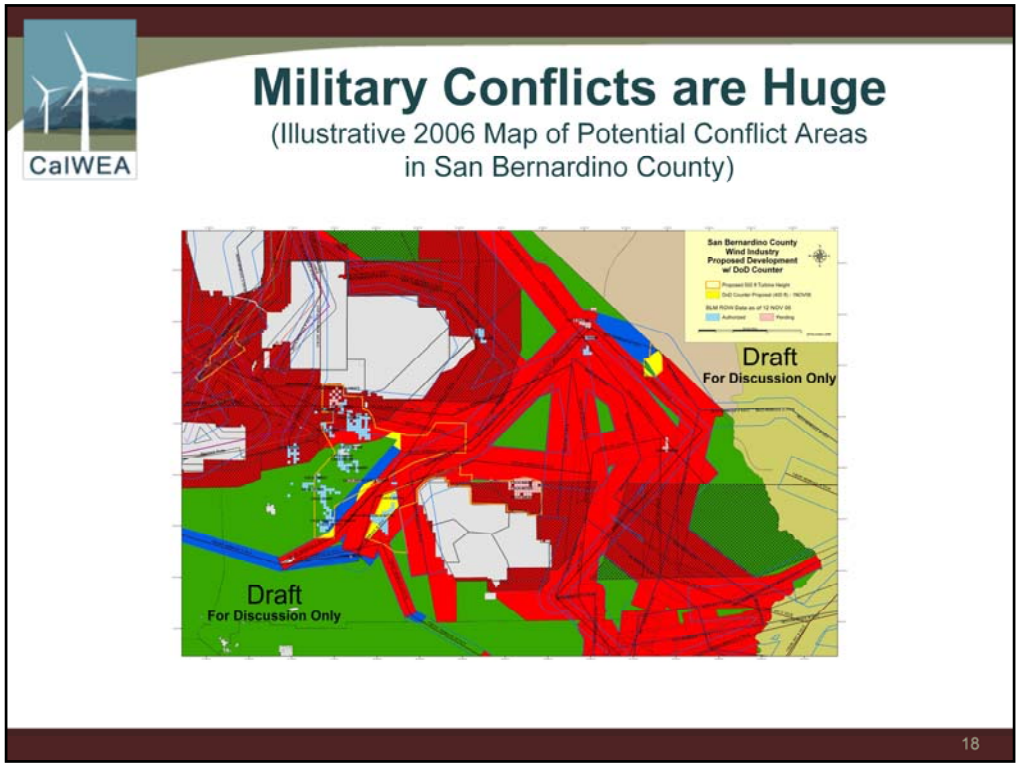
After navigating that gauntlet, a small fraction of available land will prove developable



While wind energy development is not prohibited in Areas of Critical Environmental Concern and Desert Wildlife Management Areas, they are difficult to develop in, and there are development caps in some of these areas. These areas are shown against the Phase 1 PWRA in cross-hatch.

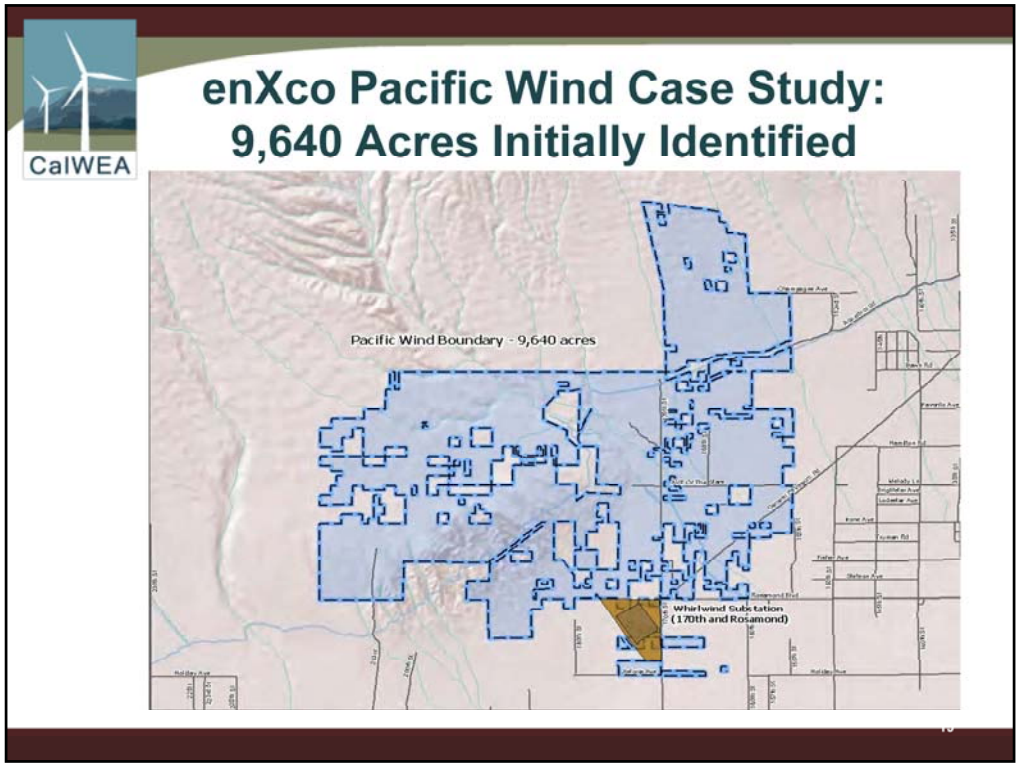
If we could clear the way for wind development in some of these areas, and if development in those areas was not restricted by the military, and there was clear access to transmission facilities, then maybe we could talk about reducing the Phase-1 area.

There is some trade-off between the need for flexibility and development certainty – the less certain it is that we can develop anywhere, the more area we need to be able to try.



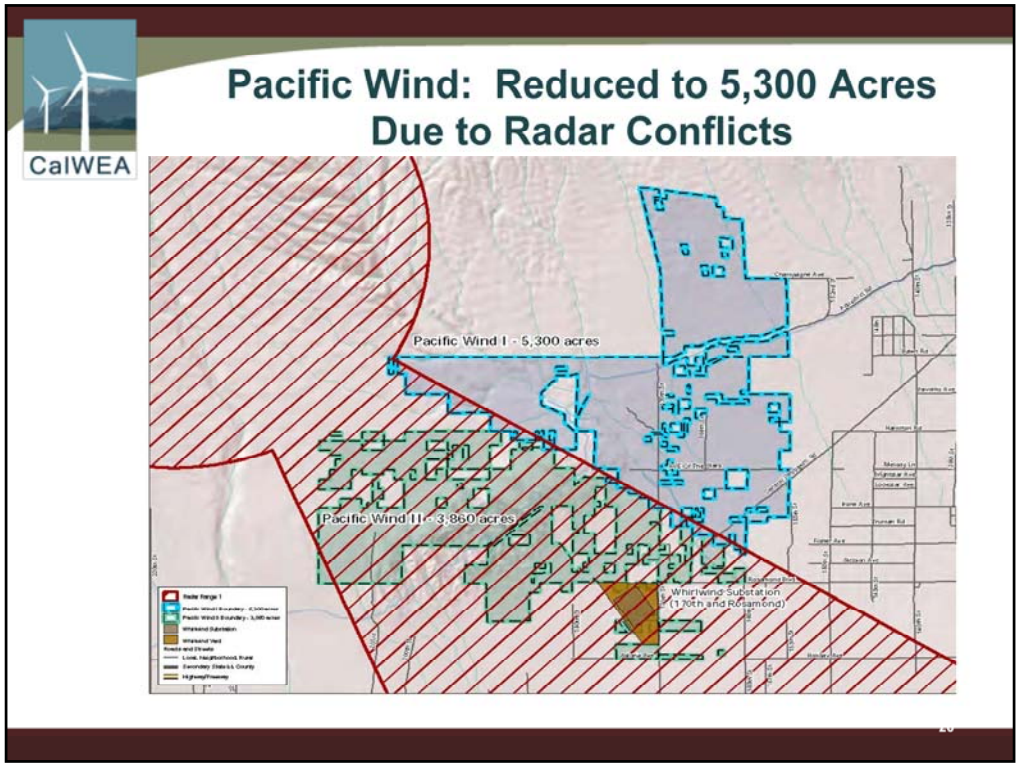
This slide gives you an idea of the scale of potential military conflicts that wind developments face in the desert. This is an old, 2006, map of potential conflicts in San Bernardino County.

While developments in “military red” areas are not prohibited – some wind projects have been able to avoid or mitigate the military conflict, developing in an area used by the military for flight training or radar is a huge challenge.

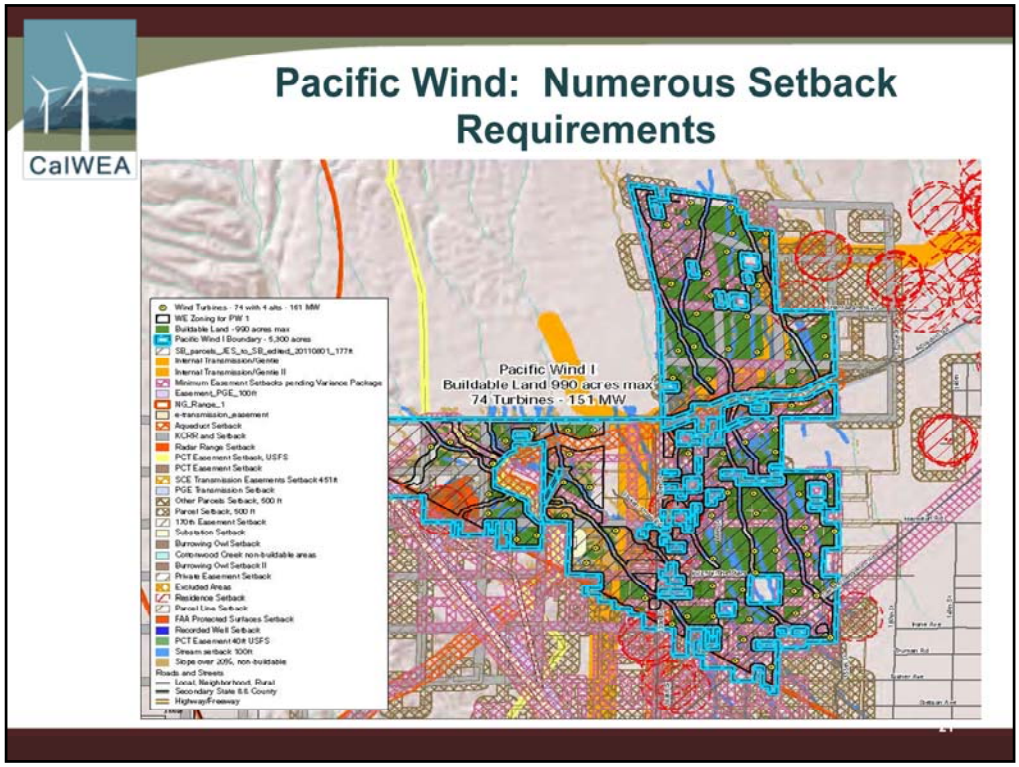


I'm re-using here some of the case-study slides that Rick Miller of enXco presented two weeks ago.

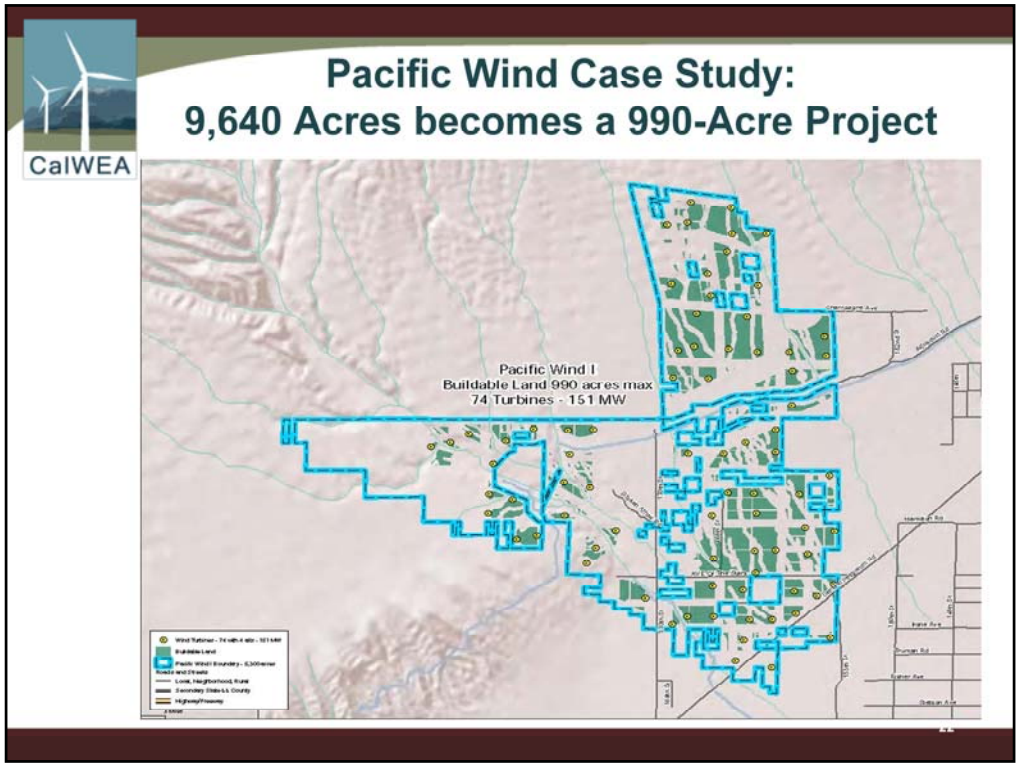
For enXco's Pacific Wind project, Rick showed how enXco started with a 9,640-acre site, … [next slide]



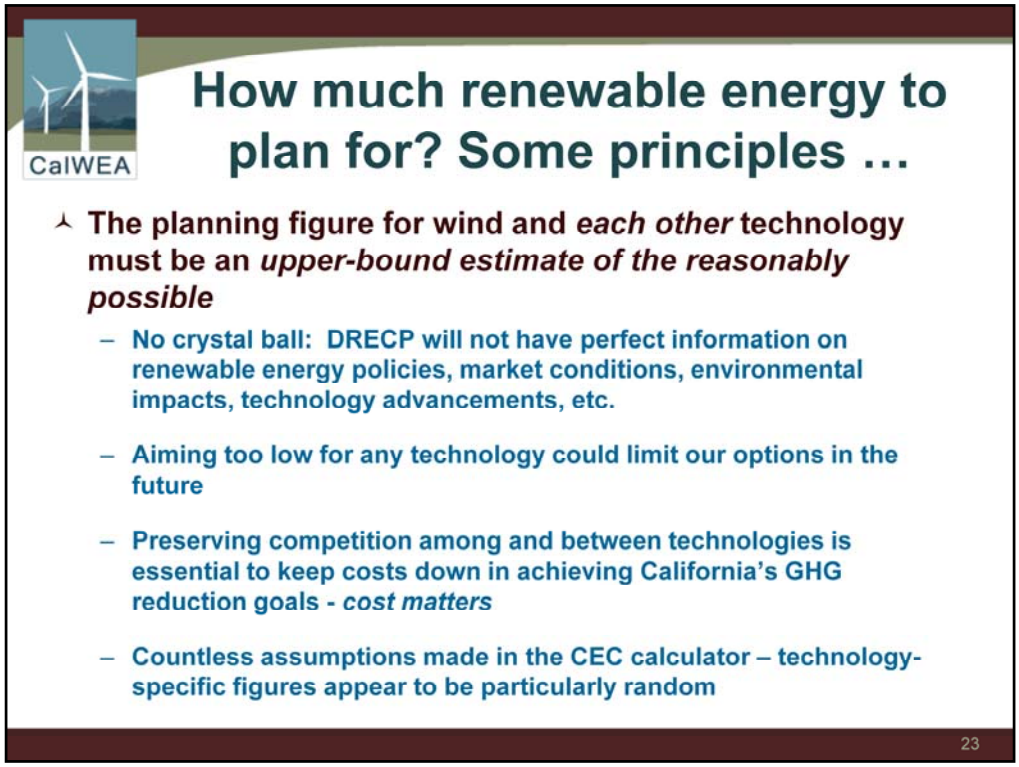
… which was reduced to a 5,300-acre site after radar conflicts were addressed … [Next slide]



The project had to address numerous setback requirements … for additional radar conflicts, transmission lines, an aqueduct, terrestrial environmental concerns, and other things.



So, in this case - which is not at all atypical -- about 10% of the land initially identified becomes developable as a project. There are many other cases where the conflicts become insurmountable and the development is abandoned altogether.



We believe that it is very important, in the DRECP process, that we plan for an upper-bound estimate of what is reasonably possible for wind and each other technology -- knowing that we will not end up with the sum total of all of them (since they are in competition). There are many reasons for this…

-- Who among us has a clear crystal ball to accurately forecast the future? I would venture to say that none of us does, and so we will not have perfect information on the many factors that will go into the amount of development that will occur in the desert for any particular technology: renewable energy policies, market conditions, environmental impacts, technology advancements, and a host of other things.

-- Aiming too low for any technology could limit our options in the future, and foreclose competition among and between technologies.

-- Preserving competition is essential to keep costs down as we strive to achieve California's GHG reduction goals - cost does matter!

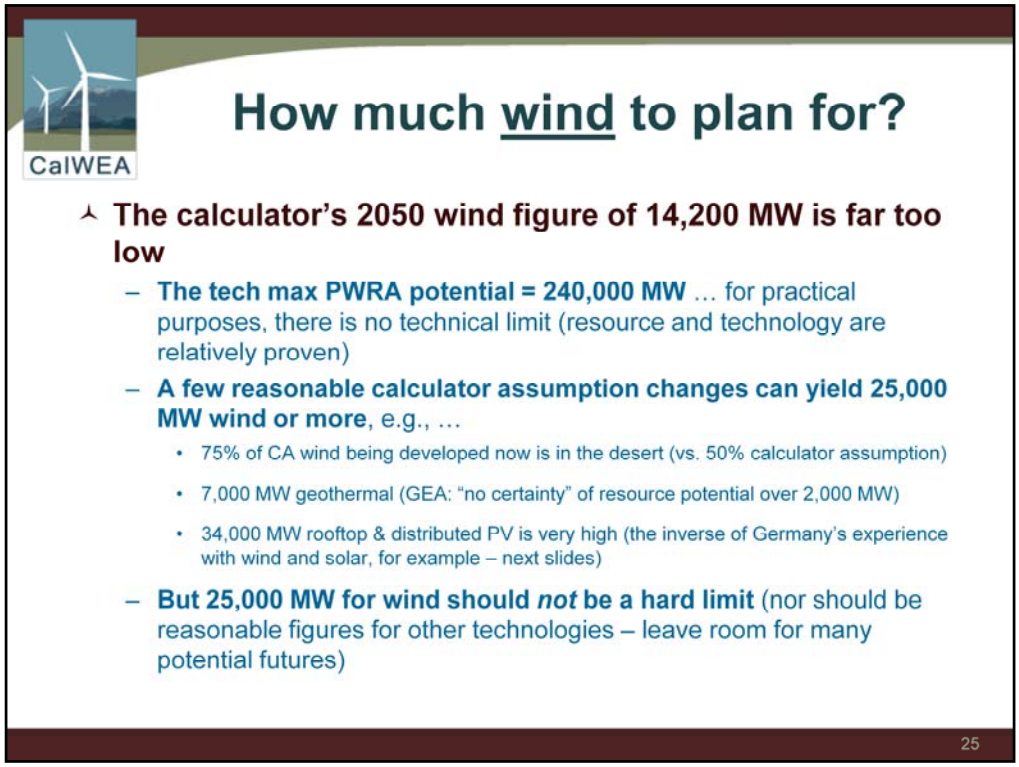
-- And we need to remember that countless assumptions have been made in the CEC calculator – the technology-specific figures appear to be particularly random.

For these reasons, we need to err on the high side … if achieving our GHG-reduction goals is the over-arching priority (and I agree that it is), then we have to apply the precautionary principle to renewable energy planning as well as to conservation planning.

We also must recognize that the DRECP is not a forum for determining renewable energy policy or conducting market planning – it is to plan for possible renewable energy development needs and for conservation in the desert

Using high-end planning figures will not necessarily result in the development of that amount for any technology (and certainly not the sum of the high-end figures for these technologies, which are in competition) – it simply ensures that we don’t foreclose any options that may prove valuable

Under NCCPs, mitigation must stay ahead of impacts. So “pay ahead as you go” will ensure appropriate mitigation for the amount of development (of whatever type) actually occurs. If mitigation becomes prohibitively expensive or impossible, then that will serve as an automatic limiter on desert development.



So, how much wind should we be planning for?

I have to say that this is a daunting question. Who am I, or who are we, to determine what the limit should be for wind development in the desert …. essentially forever?

Like I said earlier, no one has a crystal ball and so we should err on the high side.

What I can say is that the calculator's high-side wind figure for 2050 of 14,200 MW is far too low.

Consider that the technical maximum potential for wind in the PWRA area (that is, if you covered the PWRA with wind turbines spaced at 40 acres/MW), we would get 240,000 MW … So, for practical purposes, there is no technical limit, since we know that viable technology and wind resources exist today – all we would need to do would be to deploy the technology– which is not the case for geothermal, for example, as the GEA folks described.

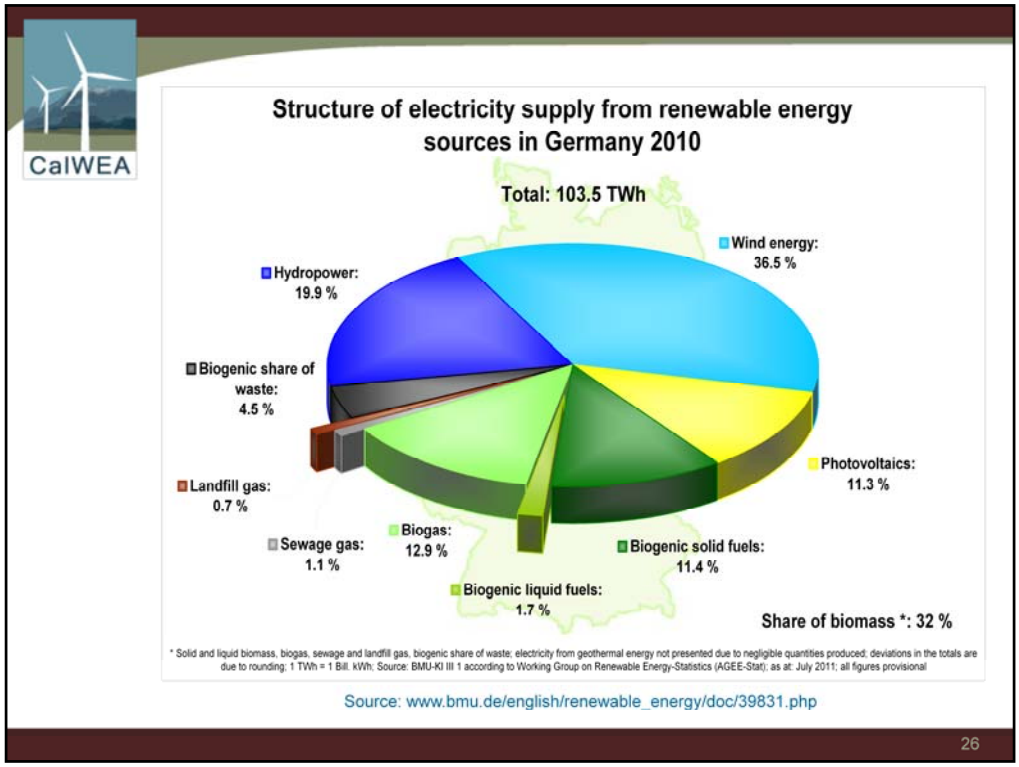
So, it's not hard to change a few assumptions in the calculator and get a reasonable upper-end figure for wind of 25,000 MW or more.

•For example, you can very reasonably assume that 75% of California's wind will be developed in the desert -- as it is now -- vs. the calculator's assumption of 50%.

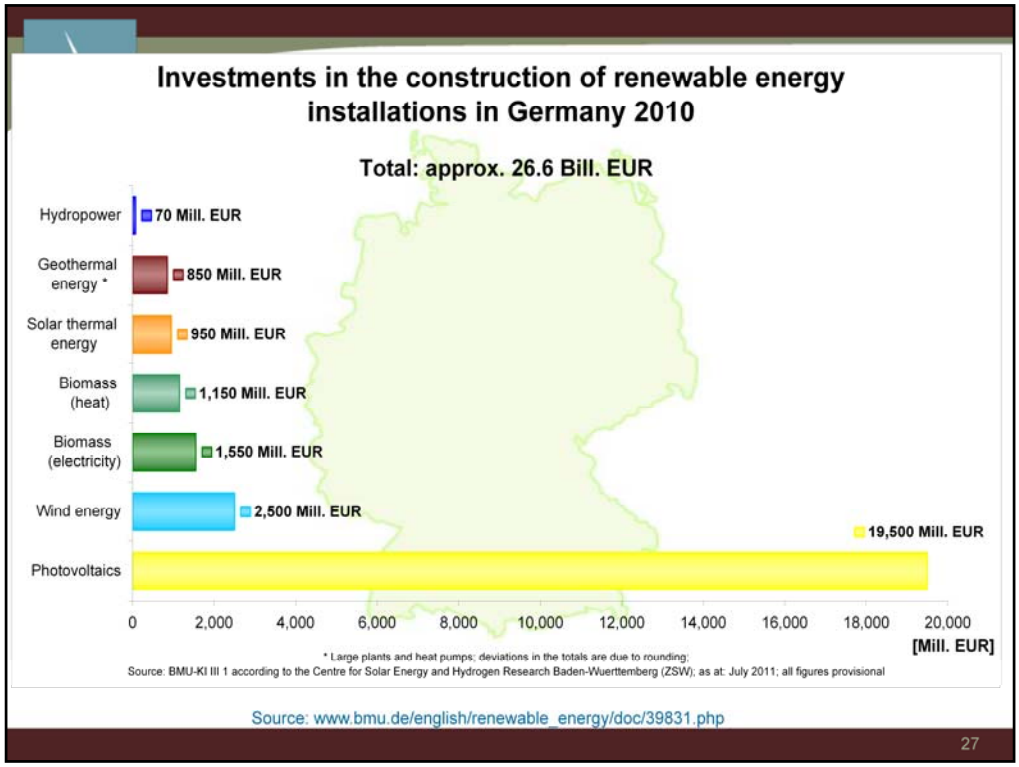
•You could reasonably adjust downward the figure for geothermal … the GEA folks said there is "no certainty" of the geothermal resource potential over 2,000 MW, for example, and David Vidaver described the 7,000 MW geothermal figure as "stretching the envelope".

•And likewise, it would not be unreasonable to adjust downward the assumed figure of 34,000 MW for rooftop & distributed PVs that the calculator assumes -- those figures are very high (the inverse of Germany's experience with wind and solar, for example – which I'll show in a moment)

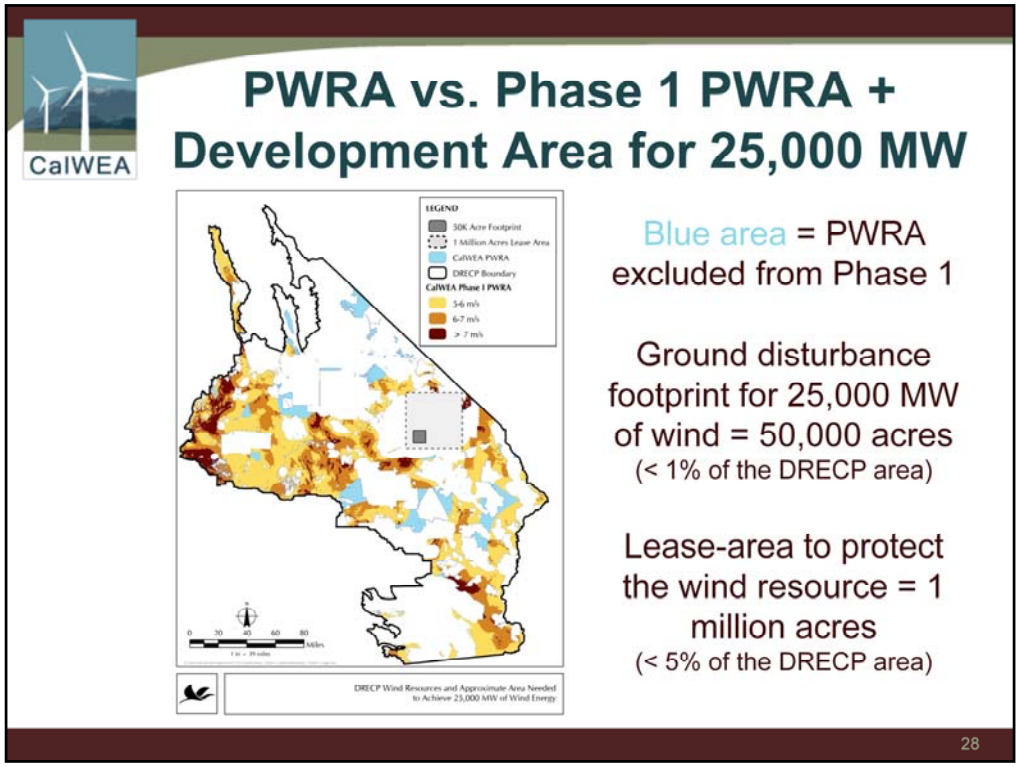
But 25,000 MW for wind should *not* be a hard limit (nor should similar figures for other technologies serve as a hard limit – I don't know exactly how to accomplish it, but we should leave room for many potential futures over the next 40 years.



Getting back to Germany's experience … Even after several years of expensive Feed-in-tariff programs, 17,000 MW of PVs provide 11% of the electricity that Germany gets from renewables vs. 36% from wind (2010).



So far, there has been no appetite expressed in the U.S. for paying the kind of FIT rates that have been paid in Europe. And those expensive FIT subsidies are about to be cut back sharply in Germany and across Europe as it deals with its financial crisis …



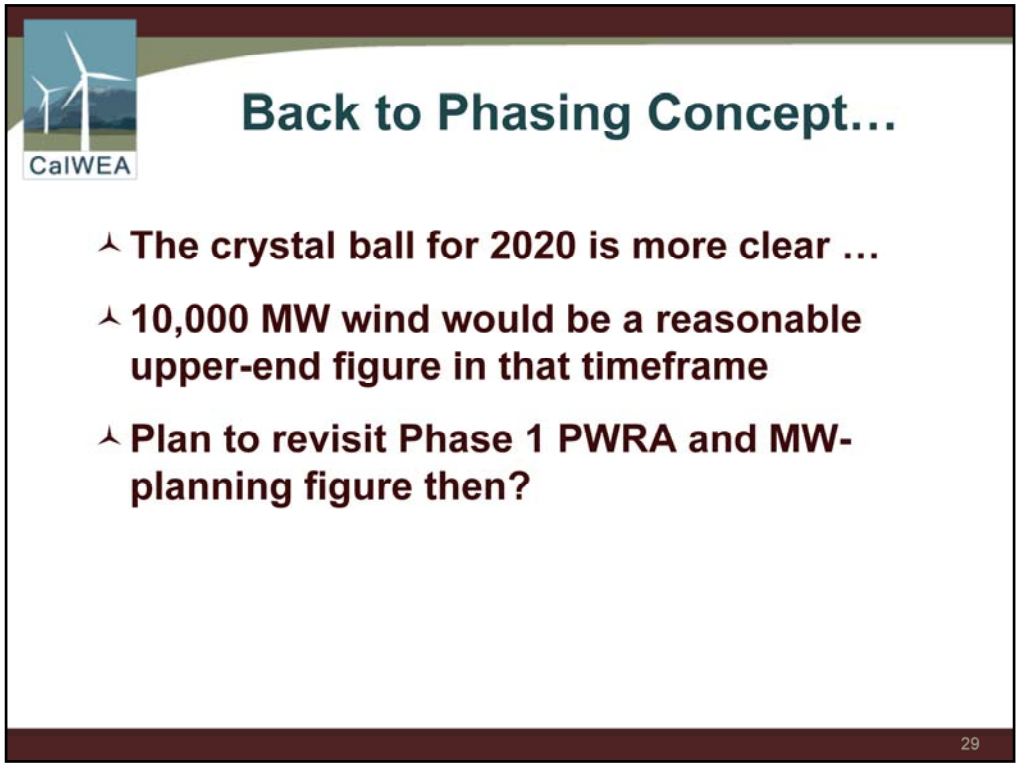
So, back to our proposal….

This slide shows our PWRA map vs. the Phase 1 PWRA map – the blue areas are the parts of the larger wind resource map that have been cut out to get to the Phase 1 area.

The little dark gray square shows what the maximum ground disturbance footprint would be for 25,000 MW of wind (less than 1% of the DRECP area)

The light-gray square shows the area that would have to be leased or otherwise protected from developments that would affect the wind resource – this is less than 5% of the DRECP area. This square reflects the fact each turbine is placed within a 40-acre area.

I don't know about you, but to me, that doesn't seem like a lot to ask for in order to achieve the state's ambitious and important GHG-reduction goals.



Back to the phasing concept …

The crystal ball for 2020 is a lot more clear eight years from now …

In that timeframe, CalWEA could agree that10,000 MW of wind would be a reasonable upper-end figure, if we agree to revisit that figure as well as the PWRA Phase 1 area later this decade.

Maybe that's a concept we should think about. In any case, I hope that it has been helpful to hear the wind industry's perspective.

We look forward to hearing other perspectives, and to figuring this out together.

Thank you!

We look forward to thinking through these difficult issues together …