

## ATTACHMENT A

### Questions for March 13, 2007, workshop on incentives for wind repowering and best practices for coordinating RPS with carbon market design

The *2006 Integrated Energy Policy Report Update (2006 IEPR Update)* concluded that little progress has been made to repower California's aging wind facilities to more efficiently use prime wind resources while reducing avian impacts. The report also concluded that achieving the state's Renewables Portfolio Standard (RPS) goals is an essential component of California's greenhouse gas emission reduction targets.

The 2007 IEPR Committee seeks public input at this workshop on two topics:

1. Incentives to encourage wind repowering; and
2. The relationship between the RPS and a future regulatory carbon market for California

#### Incentives to Encourage Wind Repowering

Reiterating earlier IEPR reports, the *2006 IEPR Update* called attention to the lack of progress to repower the state's aging wind turbines and called for action.

About 1,300 megawatts (MW) of the state's 2,230 MW of wind energy turbines were installed in the 1980s. These turbines are aging, outdated and inefficient compared to current wind turbine technology. Repowering would result in additional renewable energy delivered to the grid, which would further the state's RPS goals. However, because of the structure of current contracts, as well as provisions in the U.S. Tax Code, these facilities have little economic incentive to repower.

In the *2006 IEPR Update*, the Energy Commission requested an evaluation of whether and what type of incentives the state should consider to encourage efficient use of the state's wind energy resources while reducing avian impacts.

To develop this evaluation, the 2007 IEPR Committee requests public input on the following:

1. The *2006 IEPR Update* noted that repowered wind can provide substantial benefits to help the state achieve its RPS and greenhouse gas (GHG) goals because existing wind facilities are currently interconnected, and repowered wind can be brought on line more quickly than renewable resources that require new transmission lines. These wind turbines are located in some of California's best wind resource areas and repowering can increase the efficient use of these resources while reducing avian impacts.

Is any updated information available on the benefits to repowering wind in California?

2. The federal production tax credit encourages development of new wind energy, but contains provisions that make it difficult for repowered wind energy to qualify.<sup>1</sup>
  - a. Would removal of these provisions encourage repowering of wind? If yes, how, and if not, why not?
  - b. What other barriers discourage repowering of California's aging wind turbines?
3. What could be done in the context of existing programs to provide incentives to repower wind? What efforts are the state's utilities making to encourage wind repowering?
4. What other efforts should the state consider?
  - a. Attachment B summarizes incentives used in Europe to encourage efficient use of wind energy resources. Which of these incentives would work well in California? At what level(s) should the incentives be set to be effective?
  - b. Should the state enact an incentive for repowered wind to increase the efficient use of the state's resources while reducing avian impacts? If so, should the incentive be a production tax credit or a different type of incentive program and why? At what level(s) should the incentives be set?
  - c. What other state action could be recommended to address barriers to wind repowering and improve repowering opportunities in support of the state's RPS and greenhouse gas reduction policies? Please explain how such actions will help.

### **How should the RPS relate to a Future Carbon Market for California?**

As part of the state's efforts to reduce greenhouse gas emissions to 1990 levels by 2020, Assembly Bill 32 authorizes the California Air Resources Board (CARB) to develop a GHG emission reduction mechanism, with the option to develop a market-based compliance mechanism as part of the regulations it must adopt by January 1, 2011.

On October 18, 2006, the Governor issued Executive Order S-20-06, directing state agencies to develop, on an expeditious schedule, market-based compliance mechanisms for greenhouse gas reduction. These mechanisms are to be developed

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<sup>1</sup> U.S. Tax Code (Section 45) provides that repowered facilities with an existing standard offer contract are only eligible for the production tax credit if the contract is "amended" so that any wind generation in excess of historical norms is either sold to the utility at its current avoided costs or else sold to a third party.

concurrently with regulatory measures, and consistent with Assembly Bill 32. The Executive Order directs the Secretary for Environmental Protection to create a Market Advisory Committee of national and international experts to make recommendations to the CARB on the design of a market-based compliance program. The Order states a goal that the program be designed to permit trading with the European Union, the Regional Greenhouse Gas Initiative and other jurisdictions.

To determine the best way for the state's RPS program to support implementation of AB 32, the *2006 IEPR Update* recommended further analysis to clarify the relationship between renewable energy, renewable energy certificates (REC), and carbon emissions trading systems currently operating in other states and other countries.

The 2007 IEPR Committee wants public input on the following questions:

5. What lessons can be learned from renewable energy policies and carbon markets in other states or countries to address the following requirements of California Health and Safety Code Section 38562, subdivision (b), as enacted by Assembly Bill 32:
  - Ensure that activities undertaken to comply with the regulations do not disproportionately impact low-income communities.
  - Ensure that activities undertaken pursuant to the regulations complement, and do not interfere with, efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminant emissions.
  - Consider overall societal benefits, including reductions in other air pollutants, diversification of energy sources, and other benefits to the economy, environment, and public health.
6. What is the relationship between regulatory programs and mandates for renewable energy, such as RPS programs or Renewable Energy Standard (RES) targets, and greenhouse gas emission reduction mechanisms operating or under development in other states and countries?
  - a. Are there any circumstances in which a REC is used for RPS (or RES Target) compliance? If so, can it also be used in regulatory carbon markets? Does such an approach work well or can it be improved?
  - b. Should the allowable cap for GHG emissions be reduced to account for the amount of renewable energy required by RPS targets? If so, how should it be done? What are the pros and cons of this reduction?
7. Where unbundled RECs are allowed to meet RPS program requirements, how is the resulting null energy treated for GHG emission reduction purposes?

8. How should renewable energy used for RPS compliance be treated in a future regulatory carbon-market for California? How should RECs retired to show compliance with California's RPS be treated for carbon reduction mandates/markets?
9. The Regional Greenhouse Gas Initiative (RGGI) plans to allocate a specified percent of CO2 allowances to a public goods charge fund, with the proceeds from the sale of these allowances used to provide incentives for energy efficiency and renewable energy.
  - a. Should California adopt a similar mechanism?
  - b. The RGGI model rule also addresses how to allocate allowances to accommodate the voluntary market for renewable energy, where RECs are marketed as an option for individuals, events, and businesses to reduce their net carbon emissions.
    - o How large is the voluntary market in California?
    - o Is the voluntary market likely to affect the regulatory market? How?
    - o Should California adopt a similar mechanism? Why or why not?
10. As California moves forward to implement AB 32 and Executive Order S-20-06, what are the advantages and disadvantages of allowing the IOUs to meet post-2010 RPS requirements with unbundled RECs?
11. To best coordinate RPS with AB 32 implementation, how should behind-the-meter consumption of renewable energy be treated when issuing RECs eligible for California's RPS?
  - a. Some jurisdictions only allow RECs for energy delivered to the grid. No RECs are issued for energy used behind the meter.
  - b. A Federal Energy Regulatory Commission ruling would support issuing RECs for deliveries to the grid plus any use that is behind-the-meter but not used for "station service." For example, this interpretation could allow Calpine to be issued RECs for some of the energy they generate that is then used for fuel transport, "behind the meter but outside the fence."
  - c. The most generous interpretation would be the Nevada approach to allow RECs to be created for gross generation.