Comments of the California Wind Energy Association
On Proposed Changes to PIRP Wind-Generation Telemetry Requirements

The California Wind Energy Association (CalWEA) appreciates the opportunity to comment on the ISO's proposed changes to the Participating Intermittent Resources Program (PIRP) wind-generation telemetry requirements for meteorological (met) data. CalWEA wholeheartedly supports ISO efforts to improve the accuracy of PIRP forecasts, to reduce any cost shifts to other customers and support the long-term health and viability of the program.

However, it is important that changes to the requirements have some link to improving PIRP forecast accuracy, and that the cost of the changes not exceed the benefits they would yield. Thus, we support some of the ISO-recommended changes, support others with some modification, and oppose (at this time) one or two that do not appear to be well-founded, or would be unduly onerous or not cost-effective.

In general, we object to the "one-size fits-all" nature of the proposed requirements. There are some sites where additional monitoring requirements would be justified, due to the topology of the plant site or other factors, while other sites are more uniform and may not merit the additional effort or expense. While general rules are a good starting point, the ISO should allow individual developers to request deviations from those requirements, on a case-by-case basis, where an exception would be justified.

Meteorological stations

- ***Current requirement:*** One station, in a "representative" location on the plant site.
- ***Proposed changes, & CalWEA comments***
  - **Additional stations:** A second station would be required, in addition to the one already required; one would measure met data at "hub" height, while the other would measure data 30 meters below the hub height.

    CalWEA comments: More discussion is needed in this area, due to the factors described below. The additional met tower could cost $50,000 or more, especially with high bud heights, and we want to better understand why ISO believes that it is needed.

    - ***The requirement that one measurement point be at "hub height" could be problematic***, because:
      - Hub-height towers may require FAA approval, and this can add development time and cost; and
      - Projects can include turbines with multiple technologies (i.e., different turbine heights), and the meaning of "hub height" in such circumstances isn't clear.
    - ***It is not necessary to have two met stations*** in order to:
      - Measure wind speed at different heights – typically, a single met station can measure data at two or three different heights;
      - Install redundancy - redundant instruments can be deployed on a single tower to prevent loss of data due to instrument failure; or
      - Measure different conditions throughout the site – while wind speed and direction may vary within a site, the relationships between those conditions (e.g., ratio of different wind speeds at different points within the site) tends to be constant, and that fairly constant correlation means that measurement at one location should be sufficient to accurately forecast output for the plant.

- **Station locations:** The two required stations must be placed at the "centroid" of the plant site, "in an area that will not be influenced by turbine wake effects." The ISO and TrueWind clarified on the November 25th PIRP conference call that: (1) "centroid" means the geographic center of the site; and (2) the stations should be placed close to the centroid and equidistant from it – not right next to each other, but such that the centroid would bisect a line drawn between them.

  CalWEA comments: The proposed station-location requirements should not be adopted, because they:

  - Are inferior to the current requirement. The "centroid" location may not be at all representative of the site geography. For example, it may be located in a canyon or valley and, therefore, yield data that are not at all typical of the rest of the site or the actual wind-turbine locations. If two stations are required, they should together be representative of the site geography and wind conditions.
  - May be impossible or extremely problematic. The centroid location may not be free from wake effects in every direction, unless the plant is actually designed around the met station(s) instead of optimizing generation output, given the natural topographical and project boundary characteristics. This would pervert the intent of the requirements and would not be justified; moreover, existing projects should not have to move turbines to comply with new requirements.

  Instead, the tower(s) should be placed in a spot with the highest correlations with conditions at turbine locations (possibly, a more precise definition for "representative" location). Pre-construction wind surveys use different measurement points for developer plant-output forecasts; this information can be used to select the best location, with correlation statistics updated/confirmed via post-construction analysis.

- **Backup power source:** Each station must have a backup power source "independent of the primary power source for the station."

  CalWEA comments: We agree with the change but would go one step further, requiring a continuous source of power to the station.

  For example, we understand that an obvious problem identified by ISO has been provision of power to a station from a single turbine, so the station has no power when that turbine is down for maintenance. If the station was tied to two turbines, the station would still have no power if both turbines were down for maintenance at the same time.

  Therefore, in addition to the requirement that there be two independent power sources, the specifications should require that one or the other always be available. If the power would be provided by nearby turbines, the plant operator should be required to always have one operational; a better alternative might be for the backup system to be solar- or battery-powered (e.g., Uninterruptible Power Source (UPS) with automated warning system), and thus unaffected by turbine status.

Anemometers

- ***Current requirements:*** The wind-speed/direction measurements shown below are required, but equipment type and location are not specified.

MEASURE *(10-min. avg.)*	RANGE *(metric)*	RANGE	DESIRED ERROR	MAX. ERROR
Wind speed	0-50 meters/sec *(m/s)*	0-112 mph	<1-2%	1 m/s
Wind direction	0-360° from True North	same	<1.5°	5°

- ***Proposed changes:*** Anemometers to measure wind-speed and direction must be distributed throughout the plant site – something like one anemometer measurement for every 5 turbines, though the ISO agreed on the November 25th PIRP conference call that its language was somewhat unclear and should be revised to clarify its exact intentions.

- ***CalWEA comments:*** This requirement has not been justified. For example, plants located along ridgelines should have different requirements than those located on flat, level terrain. The ISO should justify the proposed measurement-device density before it is adopted, and then (as noted above) developers should have the right to request a reduction where the site characteristics would justify it.

"Outage Reporting"

- ***Current requirements:*** Wind plants in PIRP have no outage-reporting requirements beyond ISO Tariff requirements for generators generally, which are shown below.

REPORT TYPE	*DEFINITION*	*REPORT THRESHOLD*	*REPORT DUE:*
Availability Report	Quick report on unit/plant status change, via SLIC	Greater of 10 MW or 5% of Pmax	60 minutes after discovery
Outage Report	Submission of more detailed info on the outage	Greater of 40 MW, or 10%, below Pmax	2 Business Days after Availability Report submission

- ***Proposed changes:*** Physical de-rates or outages greater than 1 MW must be reported via the SLIC system. This would apply to equipment availability only, not wind conditions at any given time.

- ***CalWEA comments:*** CalWEA does not oppose more-granular reporting in general, with the following conditions:

  - **"Availability" vs. "Outage" Reports:** As shown above, the ISO Tariff distinguishes between Availability Reporting (instituted mainly for reliability reasons) and Outage Reporting (follow-up reports, implemented after the 2000-1 energy crisis, to help detect any intentional generation withholding).

    Any more-granular plant-status reporting for PIRP should be limited to Availability Reports only, not to the more involved Outage Reports (which would have no impact on forecast accuracy).

  - **Impact on RA SCP provisions:** CalWEA opposes the latest ISO proposal to impose a single availability standard as part of its development of a Resource Adequacy (RA) Standard Capacity Product (SCP), in large part because of the overlaps with the CPUC Qualifying Capacity (QC) counting conventions.

    However, if the ISO imposes any availability standard on wind projects under the RA SCP requirements, any equipment outages reported in compliance with any added Availability Reporting requirement adopted here should not be counted against RA SCP availability metrics. It would be unacceptable for PRIP plants to be penalized under the RA SCP provisions for complying with PIRP reporting requirements.

  - **SCADA interface:** The ISO and plant operators should work together to develop an automated interface between plant SCADA equipment, which already gathers the data ISO is seeking, and the ISO SLIC system. This would reduce the burden of the greatly increased reporting requirements beyond those in the ISO Tariff (which were recently relaxed precisely because the former standards were considered onerous by generators, including generators owned by the large investor-owned utilities).

Transition for existing plants: The ISO proposal did not address transitional issues for existing PIRP-participant plants, but CalWEA offers some thoughts here for ISO consideration, though more definition may be needed once the proposed framework is set.

- ***Exemptions:*** Existing plants should be exempt from the new requirements – except for the back-up/continuous power requirements, which should be implemented in any case – if:
  - **Their met data performance has been excellent historically** – if they are already performing well with their existing equipment, they should not be subject to the additional effort and expense to make a change; or
  - **They can demonstrate that compliance with the new requirements would be unduly expensive or otherwise onerous.** This is justified both: (1) on fairness grounds, since these plants designed their facilities in good faith based on the best information known to them, and to ISO, at the time; and (2) for practical reasons, since significant PIRP compliance expenditures could trigger Power-Purchase Agreement (PPA) renegotiation on "balance of benefits" grounds.
- ***Transition period:*** Plants required to comply with the new requirements should be given sufficient time – at least a year – to make the transition, particularly given problems financing capital investments in the current financial markets.