

**111 FERC ¶ 61,026**  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

18 CFR Part 35

(Docket Nos. RM05-10-000 and AD04-13-000)

Imbalance Provisions for Intermittent Resources  
Assessing the State of Wind Energy in Wholesale Electricity Markets

(April 14, 2005)

AGENCY: Federal Energy Regulatory Commission.

ACTION: Notice of Proposed Rulemaking.

SUMMARY: The Federal Energy Regulatory Commission (Commission) is proposing to amend its regulations to require public utilities to append to their open access transmission tariffs (OATTs) an intermittent generator imbalance service schedule.

DATES: Comments are due **[insert date 30 days after publication in the FEDERAL REGISTER.]**

ADDRESSES: Comments may be filed electronically via the eFiling link on the Commission's web site at <http://www.ferc.gov>. Commenters unable to file comments electronically must send an original and 14 copies of their comments to: Federal Energy Regulatory Commission, Office of the Secretary, 888 First Street N.E., Washington, DC, 20426. Refer to the Comment Procedures section of the preamble for additional information on how to file comments.

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SUPPLEMENTARY INFORMATION:

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Imbalance Provisions for Intermittent Resources                      Docket No. RM05-10-000

Assessing the State of Wind Energy in                                      Docket No. AD04-13-000  
Wholesale Electricity Markets

NOTICE OF PROPOSED RULEMAKING

(April 14, 2005)

Introduction

1.            In this Notice of Proposed Rulemaking (NOPR or proposed rule), we propose to clarify and amend the imbalance tariff provisions that have become outdated and have become unjust, unreasonable, unduly discriminatory or preferential, as applied to intermittent resources.<sup>1</sup> At the time Order No. 888<sup>2</sup> was issued, intermittent resources were not a significant source of generation and typically energy from intermittent resources was sold to the host utility. In the years since the issuance of Order No. 888,

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<sup>1</sup> For purposes of this rulemaking, an intermittent resource is an electric generator that is not dispatchable and cannot store its fuel source and therefore cannot respond to changes in system demand or respond to transmission security constraints.

<sup>2</sup> Promoting Wholesale Competition Through Open Access Non-discriminatory Transmission Services by Public Utilities and Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, Order No. 888, 61 Fed. Reg. 21,540 (May 10, 1996), FERC Stats. & Regs. ¶ 31,036 (1996), order on reh'g, Order No. 888-A, 62 Fed. Reg. 12,274 (March 14, 1997), FERC Stats. & Regs. ¶ 31,048 (1997), order on reh'g, Order No. 888-B, 81 FERC ¶ 61,248 (1997), order on reh'g, Order No. 888-C, 82 FERC ¶ 61,046 (1998), aff'd in relevant part, remanded in part on other grounds sub nom. Transmission Access Policy Study Group, et al. v. FERC, 225 F.3d 667 (D.C. Cir. 2000), aff'd sub nom. New York v. FERC, 535 U.S. 1 (2002).

intermittent resources have grown at an annual average rate of approximately 20 percent and want to avail themselves of the open access transmission tariff (OATT or tariff) for opportunities to make sales more broadly, but are hesitant to do so because of the application of imbalance provisions that were designed to apply to resources with the ability to control fuel input and thus schedule their energy with precision. These imbalance provisions were not designed to apply to intermittent resources that by nature are weather-driven. In order to remove the unjust, unreasonable, unduly discriminatory or preferential imbalance tariff provisions, while still providing an incentive to intermittent resources to schedule as accurately as possible, the Commission, pursuant to its authority under sections 205 and 206 of the Federal Power Act,<sup>3</sup> proposes to establish a standardized schedule under the Order No. 888 pro forma OATT to address generator imbalances created by intermittent resources<sup>4</sup> and clarify the application of the current energy imbalance provision of the Order No. 888 pro forma tariff. Therefore, under this NOPR, intermittent resources will be assessed generator imbalances pursuant to this new schedule and will not be subject to any existing generation imbalance provisions under the OATTs that contain them.<sup>5</sup> The existing Schedule 4 Energy Imbalance Charge would

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<sup>3</sup> 16 U.S.C. 824d-e (2000).

<sup>4</sup> Attached to this NOPR as Attachment A -- Schedule XYZ: Intermittent Generator Imbalance Service Schedule. "XYZ" is only a placeholder to allow the transmission provider the flexibility to label this new schedule with the next available number in its OATT.

<sup>5</sup> If the Commission adopts this proposal as a Final Rule, all public utilities that currently have generator imbalance schedules in their OATTs on file would be required  
(continued...)

continue to apply to transmission customers only for any net hourly deviations in scheduled load as the Commission had intended in Order No. 888.

2. The adverse impact of certain pro forma OATT provisions on the ability of a wind generator to avail itself of open access transmission service came to light through discussions with participants in wholesale electricity markets, including wind generators. The Commission began exploring the issues through a conference held on December 1, 2004, in Denver, Colorado to “assess the state of wind energy in wholesale electricity markets” in order “to explore possible policy changes that would better accommodate the participation of wind energy in wholesale markets.”<sup>6</sup> Prior to the conference, Commission staff issued a briefing paper that discussed several issues that wind energy resources encounter in securing interconnection and transmission service at just and reasonable rates, terms and conditions.<sup>7</sup> Among the issues explored at the December 1 conference was whether the current imbalance provisions contained in the pro forma OATT were unjust, unreasonable, unduly discriminatory or preferential for intermittent

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to update those existing schedules to exempt intermittent resources. The applicability of this proposed rule is limited to situations where the generator imbalance provisions are not already addressed in existing interconnection agreements between the generator and the transmission provider. To the extent there are existing interconnection agreements that contain generator imbalance service provisions, such agreements should be listed in Appendix 1 to Schedule XYZ.

<sup>6</sup> Notices of Technical Conference, October 4, 2004, November 18, 2004, November 22, 2004 and December 21, 2004, Docket No. AD04-13-000.

<sup>7</sup> Commission Staff’s Briefing Paper attached to the November 22, 2004, Notice of Technical Conference, Docket No. AD04-13-000 (Briefing Paper).

resources, and thus in need of reform. Subsequent outreach by Commission staff to industry and comments filed by various entities in this proceeding highlighted the need to revisit and reform imbalance provisions.

3. Order No. 888 defined and established certain terms and conditions for energy imbalance service to promote good scheduling practices by transmission customers. Under the energy imbalance service provision of the Order No. 888 pro forma tariff, a transmission customer submits a schedule for transmission service and load is permitted to deviate +/-1.5 percent from that schedule. The pricing for energy within and outside of this bandwidth was left for public utilities to propose on a case-by-case basis.

4. Since the issuance of Order No. 888, the Commission has approved energy imbalance service pricing provisions on a case-by-case basis. Generally, transmission providers proposed energy imbalance charges, including penalties for scheduling deviations set at multiples of the energy price. The purpose of this was to promote good scheduling practices by transmission customers.

5. Order No. 888 also distinguished energy imbalances from generator imbalances. Generator imbalance was defined as the difference between the scheduled and actual delivery of energy from the generator, as compared to the energy imbalance in the pro forma tariff that focused on deviations between scheduled energy and load fluctuations. While the Commission adopted an energy imbalance schedule for the pro forma OATT, it did not adopt a pro forma generator imbalance schedule. It explained that a generator should be able to deliver its scheduled hourly energy with precision and expressed concern that if a generator was allowed to deviate from its schedule by 1.5 percent

without penalty, it would discourage good generator operating practices.<sup>8</sup> Therefore, it concluded that the requirements for the generator to meet its schedule and any consequence for persistent failure to meet its schedule should be specified in each generator's interconnection agreement with its transmission provider or control area<sup>9</sup> operator. As discussed below, it also noted that the pro forma OATT contained several mechanisms to help generators match their output to their schedules.<sup>10</sup>

6. Notwithstanding the Commission's direction in Order No. 888 that generator imbalances should be addressed in a generator's interconnection agreement, several transmission providers have sought Commission approval to include in their OATTs generator imbalance service schedules that resemble the energy imbalance service schedules in their tariffs. In accepting these schedules, the Commission clarified that generator imbalance service was not an ancillary service. Thus, while energy imbalances

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<sup>8</sup> Order No. 888-A at 30,230.

<sup>9</sup> We note that, since the advent of Order No. 888, North American Electric Reliability Council (NERC) has been updating its reliability functions and considering whether the reliability functions that control areas have traditionally performed should be unbundled. Accordingly, NERC is developing a Functional Model to enable it to rewrite its reliability standards in terms of the responsible entity which now performs a given reliability function. In particular, with regard to the balancing function, a Balancing Authority is identified under NERC's Functional Model as having the responsibility to maintain the load-resource balance within a Balancing Authority Area. A Balancing Authority Area, in turn, is defined as the collection of generation, transmission, and loads within the metered boundaries of the Balancing Authority. See Final Report on the Functional Model - Reliability Standards Coordination Task Force, March 11, 2005. NERC's "Version 0" reliability standards became effective April 1, 2005.

<sup>10</sup> These include allowing the modification of schedule closer to real-time, negotiation of more favorable imbalance provisions and dynamic scheduling.

and generator imbalances are different, some transmission providers use similar provisions to settle them. In addition to these types of generator interconnection service schedules in the OATTs, certain entities have revised their tariffs to reflect the uniqueness of wind energy; and the California Independent System Operator Corporation (California ISO) has a program in place that it claims allows wind resources to compete on a comparable basis as other generators with regard to imbalance provisions.<sup>11</sup>

7. At the time Order No. 888 was developed and issued, wind generation was not a significant energy source in the wholesale electricity market. U.S. wind capacity in 1996 was approximately 1,698 MW.<sup>12</sup> By 2004, installed wind capacity, while still approximately less than one percent of U.S. total installed capacity, has grown to 6,740 MW, an annual growth rate of approximately 20 percent over the last eight years.<sup>13</sup> As discussed in the Briefing Paper, wind energy, while a relatively new market entrant, is the

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<sup>11</sup> The Commission-approved California ISO Participating Intermittent Resources Program (PIRP) that exempts wind from hourly imbalance penalties and substitutes monthly netting of imbalances in return for centralized wind delivery forecasting, is an example of tariff reforms that could facilitate wind development. California Independent System Operator Corp., 98 FERC ¶ 61,327, order accepting compliance filing, 99 FERC ¶ 61,309 (2002). The California ISO's voluntary PIRP was created to accommodate projected growth of wind generation attributable to California's renewable supply requirements.

<sup>12</sup> American Wind Energy Association (AWEA), Wind Power: U.S. Installed Capacity (Megawatts), 1981-2004 (visited Apr. 11, 2005) <<http://www.awea.org/faq/instcap.html>>.

<sup>13</sup> Commission staff's analysis is based on data collected from AWEA, Wind Energy Projects Throughout the United States of America (last modified Mar. 24, 2005) <<http://www.awea.org/projects/>> and Platts' PowerDat.

fastest growing electricity generation technology in the world today. Increasingly attractive economics and technological advances are combining to drive wind industry development. State renewable portfolio standards, federal production tax credits (PTC)<sup>14</sup> and historically high natural gas prices<sup>15</sup> are also driving wind development. While there has been significant progress towards integrating wind resources into suppliers' and loads' portfolios, some challenges may result from the terms and conditions of transmission service required by transmission providers.

8. Recently, proponents of wind generation have been arguing that the deviation between a wind generator's hourly output and its schedule (generator imbalance) is not influenced by the threat of a penalty. Rather, they assert, such imbalances are weather-dependent. Moreover, they note, while improved forecasting could mitigate some imbalances, significant imbalances would remain that cannot be controlled as can thermal generation. Thus, they maintain that wind generators are susceptible to high imbalance charges and/or penalties that discourage the development of and opportunities for wind resources to serve load.

9. The Commission has a duty to prevent unduly discriminatory practices in transmission access. Since deviations by wind generators from their schedules are much more driven by weather than by controllable factors (compared to most other generators),

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<sup>14</sup> The PTC, as renewed in October 2004, provides a credit of 1.8 cents/kWh produced for ten years from the date a facility is put into operation. To qualify, a wind facility must be operational before the PTC expires (currently slated for December 2005).

<sup>15</sup> NYMEX spot natural gas prices in nominal dollars.

the generator imbalance provisions in transmission providers' OATTs are impeding access to transmission by intermittent resources in such a manner as to be unduly discriminatory under section 206 of the Federal Power Act. A case-by-case analysis of these OATTs would be burdensome and would only serve to delay access to the transmission grid by intermittent resources. Accordingly, we are proposing a new generator imbalance service schedule applicable to intermittent resources to be included in the pro forma tariff for adoption by all transmission providers in their OATTs.<sup>16</sup> This new schedule would effectively supersede the current OATT generator imbalance provisions for intermittent resources. In particular, we propose that the service reflect a bandwidth of +/- 10 percent (with a minimum of 2 MW) and allow net hourly intermittent generator imbalances within the bandwidth to be settled at the system incremental cost<sup>17</sup> at the time of the imbalance. We reiterate that transmission customers are and must be allowed to change their schedule up to 20 minutes before the hour.<sup>18</sup> We also reiterate our policy that a transmission provider may only charge the transmission

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<sup>16</sup> Any non-public utility that seeks voluntary compliance with the reciprocity condition of an OATT may satisfy this condition by adopting the proposed new schedule. Therefore, public power entities and other non-public utilities with reciprocity tariffs must add the final Schedule XYZ to their reciprocity tariffs if they wish to continue to have safe harbor protection.

<sup>17</sup> "Incremental costs are defined as the transmission provider's actual average hourly cost of the last 10 MW dispatched to supply the transmission provider's native load, based on the replacement cost of fuel, unit heat rates, start-up costs, incremental operation and maintenance costs, and purchased and interchange power costs and taxes." Consumers Energy Co., 87 FERC ¶ 61,170 at 61,679 (1999) (Consumers).

<sup>18</sup> Section 13.8 of the pro forma OATT.

customer for net hourly generator imbalances or net hourly energy imbalances for the same imbalance, but not both.<sup>19</sup> Thus, in the situation where the transmission provider has a choice to charge a transmission customer an energy imbalance or generator imbalance, we propose that the transmission customer would be charged for the net hourly imbalance under the proposed intermittent generator imbalance schedule.

10. In proposing the generator imbalance service approach for intermittent generation resources, the Commission is mindful of its long-standing concerns regarding the maintenance of system reliability and the obligation of public utilities to conform to good utility practices and abide by NERC's reliability standards.<sup>20</sup> When the Commission adopted order No. 888, it took a conservative approach to ensure that system reliability was maintained. For instance, in Order No. 888-A, the Commission explained that the energy imbalance service, in the pro forma OATT, was not intended to be used as a

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<sup>19</sup> The Commission found that where a transmission customer schedules 20 MW to serve a 20 MW load, but only 15 MW is delivered to the transmission provider and the load is only 15 MW, the transmission customer should not be charged for a 5 MW energy deviation imbalance and a 5 MW generator deviation imbalance. Niagara Mohawk Power Corp., 86 FERC ¶ 61,009 at 61,028, order on reh'g, 87 FERC ¶ 61,148 (1999) (Niagara Mohawk). Further in situations where, for example, if a transmission customer schedules 20 MW to serve a 20 MW load, but only 15 MW (or 25 MW) is delivered and load is 25 MW (or 15 MW), then a transmission provider would be allowed to charge the transmission customer both a 5 MW energy imbalance deviation and a 5 MW generator imbalance deviation. We seek comment on these and other possible scenarios where it would be appropriate or inappropriate to charge for generator imbalances and/or energy imbalances. Also, we seek comment on how to expand Schedule XYZ to address the various scheduling deviation situations.

<sup>20</sup> Policy Statement on Matters Related to Bulk Power System Reliability, 107 FERC ¶ 61,052, order granting request for clarification, 108 FERC ¶ 61,288 (2004).

substitute for operating reserves.<sup>21</sup> The Commission also indicated that a transmission customer may not decline the transmission provider's offer of energy imbalance service unless it demonstrates that it has acquired the services from another source and shows that the alternative arrangement for energy imbalance service is adequate and consistent with good utility practice.<sup>22</sup> Further, the Commission denied a request to expand the energy imbalance service bandwidth for a transmission customer purchasing spinning and supplemental reserves because such reserves provide generating capacity that responds to contingency situations (e.g., loss or failure of facilities) and noted that energy supplied within an expanded bandwidth might be provided from reserve capacity that could be needed for maintaining system reliability.<sup>23</sup> In this NOPR, we recognize that intermittent resources, unlike dispatchable generation, have a limited ability to predict and control their output. Additionally, we expect that the penetration rates of these resources for most transmission systems will be relatively small in comparison to total generation and transmission on any system. As such, small variations in output caused by these entities should be easily managed and not unduly threaten system reliability.<sup>24</sup> The intent of the

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<sup>21</sup> Order No. 888-A at 30,230.

<sup>22</sup> Order No. 888-A at 30,231.

<sup>23</sup> Order No. 888-A at 30,232-33.

<sup>24</sup> See New York State Energy Research and Development Authority, The Effects of Integrating Wind Power on Transmission System Planning, Reliability and Operations Report on Phase 2: System Performance Evaluation prepared by GE Energy, Energy Consulting ( March 2005) and Xcel Energy and the Minnesota Department of Commerce,

(continued...)

proposals in this NOPR is to not allow intermittent resources carte blanche to vary output and threaten system reliability. We fully expect that to the extent that a specific transmission system configuration may require that additional measures be taken to maintain system reliability,<sup>25</sup> we would entertain such proposals to undertake such additional measures, on a case-by-case basis. We seek comment on what impact the proposed bandwidth of +/-10 percent with regard to intermittent generator imbalances and scheduling flexibility might have on the operation of the transmission providers' system and reliability of the system.

11. These proposed changes should encourage the development of wind resources by removing barriers that affect intermittent resources' access to the transmission grid. This will bring benefits to energy customers and support increased reliability by increasing the diversity of energy supplies.

12. The impetus for this proposed rule has been provided by the wind industry. We also recognize that run-of-river hydroelectric and solar power, as well as other emerging technologies, may be similarly situated to wind power with respect to the issues presented here. Accordingly, we request comments on whether there are other technologies that may be subject to this rule and whether the proposal will work for those technologies.

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Wind Integration Study Final Report prepared by EnerNex Corp. and WindLogics (September 2004).

<sup>25</sup> For example, as the ratio of intermittent resource capacity to generation dispatchable capacity increases, beyond some point it becomes unmanageable with normal operating tools, and thereby destabilizes the system and threatens system reliability.

We also seek comments on the Commission's proposed definition of intermittent resources as stated in footnote 1 of this NOPR.

## Background

### Order No. 888

13. In Order No. 888, the Commission concluded that six ancillary services must be included in an OATT.<sup>26</sup> One of those ancillary services is energy imbalance service (Schedule 4 of the pro forma OATT).<sup>27</sup> The Commission explained that energy imbalance service "is provided when the transmission provider makes up for any difference that occurs over a single hour between the scheduled and the actual delivery of energy to a load located within its control area."<sup>28</sup> The Commission recognized that the amount of energy taken by load in an hour is variable and not subject to the control of either a wholesale seller or a wholesale requirements buyer.<sup>29</sup>

14. The Commission also found that the energy imbalance service should have an energy deviation band or bandwidth appropriate for load variations and a price for exceeding the bandwidth that is appropriate for excessive load variations.<sup>30</sup> The bandwidth established by the Commission is an hourly deviation band of +/- 1.5 percent

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<sup>26</sup> Order No. 888 at 31,703.

<sup>27</sup> Id.

<sup>28</sup> Id. at 31,960.

<sup>29</sup> Order No. 888-A at 30,230.

<sup>30</sup> Id.

(with a minimum of 2 MW) for energy imbalance.<sup>31</sup> The Commission further explained that this bandwidth promotes good scheduling practices by transmission customers and that it is important that the implementation of each scheduled transaction not overly burden others.<sup>32</sup>

15. With respect to the hourly energy deviation band, the Commission explained that for energy imbalances within the deviation band, the transmission customer may make up the difference within 30 days (or other reasonable period generally accepted in the region) by adjusting its energy deliveries to eliminate the imbalance (i.e., return energy in kind within 30 days).<sup>33</sup> In addition, the Commission explained that the transmission customer must compensate the transmission provider for an imbalance that falls outside the hourly deviation band and for accumulated minor imbalances that are not made up within 30 days.<sup>34</sup>

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<sup>31</sup> Order No. 888 at 31,960-61. In Order No. 888-A, the Commission recognized the needs of small customers and raised the minimum energy imbalance from one megawatt per hour to two megawatts per hour. In doing so, the Commission sought to balance its primary goal of promoting good scheduling practices with its commitment to provide as much relief as possible to small customers. Order No. 888-A at 30,232-33 and 30,540.

<sup>32</sup> Order No. 888-A at 30,232.

<sup>33</sup> Id. at 30,229. In Niagara Mohawk, the Commission rejected the return-in-kind energy compensation approach, reiterating its concern in Order No. 888-A that generators might intentionally undergenerate during high-cost hours and make it up by overgenerating during low-cost hours. Id. at 86 FERC at 61,028.

<sup>34</sup> Order No. 888-A at 30,229.

16. The Commission further stated that to help customers with the difficulty of forecasting loads far in advance of the hour, the pro forma OATT permits schedule changes up to twenty minutes before the hour at no charge.<sup>35</sup> The Commission added that it would allow the transmission provider and the customer to negotiate and file another bandwidth more flexible to the customer, if the same bandwidth is made available on a not unduly discriminatory basis.<sup>36</sup>

17. With respect to the price of energy imbalance service, the Commission explained that the Final Rule intentionally did not provide detailed pricing requirements.<sup>37</sup> Instead, the Commission required transmission providers to apply to the Commission for appropriate rates for energy imbalance service.<sup>38</sup>

18. While the Commission found that energy imbalance service was an ancillary service, it also recognized that differences arise between energy scheduled for delivery from the generator's control area and the amount of energy actually generated in an hour (generator imbalance).<sup>39</sup> It concluded, however, that a generator should be able to deliver its scheduled hourly energy with precision and expressed concern that if it were to allow the generator to deviate from its schedule by 1.5 percent without penalty, as long as it

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<sup>35</sup> Order No. 888-A at 30,233.

<sup>36</sup> Id.

<sup>37</sup> Id. at 30,234.

<sup>38</sup> Id.

<sup>39</sup> Id. at 30,230.

returned the energy in kind at another time, it would discourage good generator operating practices.<sup>40</sup> The Commission stated that a generator will have an interconnection agreement with its transmission provider or control area operator, and that this agreement should specify the requirements for the generator to meet its schedule, and for any consequence for persistent failure to meet its schedule.<sup>41</sup> The Commission concluded that these arrangements should be done on an agreement-by-agreement basis, and that it preferred not to set these standards generically for all parties.<sup>42</sup>

19. In Order No. 888, the Commission decided not to designate dynamic scheduling service as an ancillary service.<sup>43</sup> Dynamic scheduling was considered a special service that was not only used infrequently in the industry, but used advanced technology and required a great level of coordination. Thus, the Commission stated that each dynamic scheduling application has unique costs for special telemetry and control equipment, making it difficult to post a standard price for the service. Therefore, transmission providers were not required to offer this service to a transmission customer, although it

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<sup>40</sup> Id.

<sup>41</sup> Id.

<sup>42</sup> Id. at 30,230-31.

<sup>43</sup> Dynamic Scheduling provides the metering, telemetering, computer software, hardware, communications, engineering, and administration required to allow remote generators to follow closely the moment-to-moment variations of a local load. In effect, dynamic scheduling electronically moves load out of the control area in which it is physically located and into another control area. Order No. 888 at 31,709-10.

was allowed to do so voluntarily.<sup>44</sup> If the customer wanted to purchase this service from a third party, the transmission provider was directed to make a good faith effort to accommodate the necessary arrangements between the customer and the third party for metering and communication facilities.<sup>45</sup>

### **Case Precedent**

20. Although transmission providers have different energy imbalance charges set forth in Schedule 4 of their OATTs, typical pricing provisions provide that the parties correct energy imbalances within the deviation band through return in kind or financial settlement which requires the transmission customer to pay a charge for under-deliveries of energy equal to 100 percent of the transmission provider's system incremental cost for the hour the deviation occurred, and for energy over-deliveries the transmission customer would receive a payment equal to 100 percent of the transmission provider's decremental cost for the hour the deviation occurred.<sup>46</sup> Outside the deviation band, utilities typically charge the transmission customer for under-delivery of energy a charge equal to the greater of \$100/MWh or 110 percent of the utility's system incremental cost, and pay the

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<sup>44</sup> Order No. 888-A at 31,710.

<sup>45</sup> Id.

<sup>46</sup> See, e.g., Schedule 4 (Energy Imbalance Charge) of Arizona Public Service Company and Public Service Company of New Mexico (PNM).

transmission customer for over-delivery of energy a payment equal to 90 percent of the utility's system decremental cost.<sup>47</sup>

21. The Commission has accepted a number of modifications to the OATT to include generator imbalance provisions.<sup>48</sup> The first case involved a filing by Niagara Mohawk Power Corp. (Niagara Mohawk) proposing a separate tariff to deal with generator imbalances.<sup>49</sup> The Commission rejected that approach, but addressed the filing as an amendment to Niagara Mohawk's OATT and accepted generator imbalance provisions for inclusion in Niagara Mohawk's OATT. Subsequently, the Commission accepted a variety of filings submitted by public utilities to amend their OATTs to include generator imbalance provisions.

Order No. 2003

22. In the NOPR in Docket No. RM02-1-000, Standardization of Generator Interconnection Agreements and Procedures, the proposed Large Generator Interconnection Agreement (LGIA) Article 4.3.1 amendment to the OATT required the

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<sup>47</sup> Id.

<sup>48</sup> See, e.g., Niagara Mohawk Power Corp., 86 FERC ¶ 61,009 (1999); PacifiCorp, 95 FERC ¶ 61,145, order on reh'g and clarification, 95 FERC ¶ 61,467 (2001); Alliant Energy Corporate Services, Inc., 93 FERC ¶ 61,340 (2000) (orders on rehearing and court appeal sought on other tariff issues); Wolverine Power Supply Cooperative, Inc., 93 FERC ¶ 61,330 (2000); Commonwealth Edison Co., 93 FERC ¶ 61,021 (2000); FirstEnergy Operating Cos., 93 FERC ¶ 61,200 (2000), order denying reh'g & granting clarification, 94 FERC ¶ 61,184 (2001); Tampa Electric Co., 90 FERC ¶ 61,330 (2000), reh'g denied, 95 FERC ¶ 61,101 (2001); Florida Power Corp., 89 FERC ¶ 61,263 (1999); and Consumers, 87 FERC ¶ 61,170.

<sup>49</sup> Niagara Mohawk, 86 FERC at 61,024-29.

interconnection customer to make appropriate generator balancing service arrangements<sup>50</sup> before submitting any schedules for delivery service that identified the generating facility as the point of receipt for the scheduled delivery.<sup>51</sup> Specifically, the interconnection customer would have to ensure that the generating facility's actual output matched its scheduled delivery, on an integrated clock basis, including ramping in and out of its schedule. Also, the interconnection customer was required to arrange for the supply of energy when there was a difference between the actual output and the scheduled delivery. The proposed Article 4.3 allowed the interconnection customer to make generator balancing service arrangements in a variety of ways.

23. On rehearing of Order No. 2003, based on objections to the balancing service requirement of Article 4.3, the Commission deleted Article 4.3 (and Article 4.3.1) from the LGIA on the basis that this requirement is more closely related to delivery service than to interconnection service.<sup>52</sup> In Order No. 2003-A, the Commission noted that

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<sup>50</sup> A generator balancing service arrangement is a provision of the interconnection agreement that makes the interconnection customer responsible for matching the generating facility's actual output with its scheduled delivery, and requires the interconnection customer to arrange for the supply of energy when there is a difference between the actual output and the scheduled delivery.

<sup>51</sup> Standardization of Generator Interconnection Agreements and Procedures, Notice of Proposed Rulemaking, 67 Fed. Reg. 22,250 (May 2, 2002), FERC Stats. & Regs. 32,560 (2002).

<sup>52</sup> Standardization of Generator Interconnection Agreements and Procedures, Order No. 2003, 68 Fed. Reg. 49,845 (Aug. 19, 2003), FERC Stats. & Regs., Regulations Preambles ¶ 31,146 (2003) (Order No. 2003), order on reh'g, 69 Fed. Reg. 15,932 (Mar. 24, 2004), FERC Stats & Regs., Regulations Preambles ¶ 31,160 at 667 (2004) (Order No. 2003-A), order on reh'g, 70 Fed. Reg. 265 (January 4, 2005), FERC Stats & (continued...)

delivery service requirements are addressed elsewhere in the OATT, and therefore a balancing service requirement, and requirements related to ancillary services generally, should not appear in the LGIA.<sup>53</sup>

24. On rehearing of Order No. 2003-A, the Commission recognized that transmission providers may prefer to include generator balancing service arrangements in the pro forma LGIA. The Commission further recognized that some transmission providers may prefer to include such a provision in the interconnection agreement that it enters into with the interconnection customer, rather than in a separate agreement.<sup>54</sup> Therefore, in Order No. 2003-B, the Commission permitted the transmission provider to include a provision for generator balancing service arrangements in individual interconnection agreements.<sup>55</sup>

#### **Summary of Comments in Docket No. AD04-13-000**

25. Several industry participants believe that it is appropriate for the Commission to address imbalance penalties and the effect of imbalance penalties on intermittent resources.<sup>56</sup> Edison Electric Institute (EEI) supports review and potential revision to existing transactions scheduling business practices and procedures in order to better

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Regs., Regulations Preambles ¶ 31,171 (2004) (Order No. 2003-B), reh'g pending; see also Notice Clarifying Compliance Procedures, 106 FERC ¶ 61,009 (2004).

<sup>53</sup> Order No. 2003-A at P 667.

<sup>54</sup> Order No. 2003-B at P 75.

<sup>55</sup> Id.

<sup>56</sup> See, e.g., Electric Power Supply Association (EPSA) at 2 and AWEA at 2-4 (Jan. 28, 2005 comments).

accommodate wind energy, provided system reliability is maintained in a cost-effective manner.<sup>57</sup>

26. Certain entities argue that intermittent renewable resources, such as wind generators, lack the ability to control the circumstances affecting their output with the assurance required to maintain electric output schedules.<sup>58</sup> They note that intermittent generators do not have the ability to modify their output as they rely on the weather for their energy source.<sup>59</sup> Therefore, the commenters argue that penalties associated with generator deviations from filed schedules that were intended to prevent generators from gaming the market, do not encourage a wind generator to match its output with the schedule.<sup>60</sup> While some industry participants seek changes to the imbalance provisions contained in public utilities' tariffs,<sup>61</sup> others believe that wind resources should not be assessed any penalties.<sup>62</sup>

27. The Arkansas Public Service Commission (Arkansas Commission) recognizes that outside of RTOs, the pro forma tariff permits the transmission provider to impose substantial imbalance penalties which may pose a magnified burden on wind energy

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<sup>57</sup> EEI at 4.

<sup>58</sup> See, e.g., AWEA at 2-4, Renewable Northwest Project (RNP) at 3-4 and Zilkha Renewable Energy (Zilkha) at 5-6.

<sup>59</sup> See, e.g., AWEA at 2-4 and RNP at 3-4.

<sup>60</sup> See, e.g., AWEA at 2-4 and RNP at 3-4.

<sup>61</sup> See, e.g., Calpine at 2 and RNP at 4.

<sup>62</sup> See, e.g., RNP at 3-4 and Zilkha at 5-6.

producers because they have trouble predicting their daily generation output.<sup>63</sup> While the Arkansas Commission agrees a review of such charges under the pro forma tariff is appropriate and such charges should better reflect incremental costs, it opposes an exception for wind generators.<sup>64</sup> NorthWestern Energy Corporation (NorthWestern Energy) states that it does not oppose the elimination of imbalance penalties for intermittent resources, provided that the Commission address whether the Federal Power Act's prohibition against undue preference and the Commission's policy concerning comparability would be undercut by affording preferential treatment for imbalance penalties to a generator based on fuel source.<sup>65</sup>

28. Oklahoma Municipal Power Authority (OMPA) states that it is the Commission's responsibility to ensure that non-control area and control area utilities have an equal and non-discriminatory opportunity to develop and utilize wind resources.<sup>66</sup> Transmission Access Policy Study Group (TAPS) and OMPA argue that currently, wind generators who operate outside the purchasing utility's control area are exposed to imbalance penalties under Schedule 4 of the OATT for deviations, while control area utilities are able to treat deviations as inadvertent energy, subject to return-in-kind requirements.<sup>67</sup>

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<sup>63</sup> Arkansas Commission at 6-7.

<sup>64</sup> Arkansas Commission at 6-7.

<sup>65</sup> Northwestern at 5-7.

<sup>66</sup> OMPA at 2.

<sup>67</sup> OMPA at 2 and TAPS at 1-2 (Post-technical conference comments).

Calpine states that the Commission should re-evaluate imbalance penalties imposed by control area operators that operate outside of an Independent System Operator (ISO) or Regional Transmission Operator (RTO), whether the penalties apply to intermittent resources or to conventional resources.<sup>68</sup>

29. Several commenters claim that the imbalance penalties are arbitrary and punitive and do not measure the true costs of over-generating or under-generating.<sup>69</sup> They assert that the penalties assessed may be significantly higher than the cost of energy itself and, therefore, are cost-prohibitive for these weather-dependent generators.<sup>70</sup>

30. Several solutions have been proposed for addressing imbalance charges and/or penalties. For example, National Grid USA (National Grid) and RNP states that the Commission should consider imbalance charges for wind resources that are cost-based.<sup>71</sup> Zilkha advocates the elimination of under-generation penalties and supports the development of market mechanisms to address both regulation and energy imbalances resulting from under-generation.<sup>72</sup> National Grid and NorthWestern Energy asserts that wind generators should be responsible for any actual costs incurred, such as system

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<sup>68</sup> Calpine at 2.

<sup>69</sup> AWEA at 2-4, RNP at 3-4, National Grid at 5-7 and Zilkha at 5-6.

<sup>70</sup> RNP at 3-4.

<sup>71</sup> National Grid at 5-7.

<sup>72</sup> Zilkha at 5-6.

balancing and regulation service, to allow for integration of the wind resource.<sup>73</sup> The Arkansas Commission also states that while eliminating an unwarranted penalty may be appropriate, imbalance charges should not be priced in a manner that subsidize the generator and harms the transmission provider because the transmission provider will likely flow the cost (an added cost of imbalance energy) through to native load customers.<sup>74</sup> Thus, it suggests adjusting the imbalance charge to better reflect the incremental costs, which may be the transmission provider's opportunity cost.<sup>75</sup> EEI suggests that all potential energy imbalance alternatives should explicitly consider whether and to what extent cost shifting and/or subsidization would occur.<sup>76</sup> EEI recommends that the Commission should consider the "incremental cost plus 10%" approach that several entities already use for the entities that do not presently have energy imbalance markets.

31. According to National Grid, the proper allocation of actual imbalance costs should provide the necessary incentives for suppliers to remain in balance without resorting to additional punitive measures and cost-based imbalance charges would provide for necessary cost recovery.<sup>77</sup> NorthWestern Energy believes that it is necessary to provide

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<sup>73</sup> Northwestern at 5-7.

<sup>74</sup> Arkansas Commission at 6-7.

<sup>75</sup> Arkansas Commission at 6-7.

<sup>76</sup> EEI at 4.

<sup>77</sup> National Grid at 5-7.

some incentive to intermittent generators to schedule accurately, if they are not charged penalties associated with generation imbalance.<sup>78</sup>

32. One request set forth by commenters is for the Commission to examine the scheduling and imbalance provisions of certain transmission providers that they believe are reasonable for intermittent generators, such as Bonneville Power Administration, PacifiCorp, or the California ISO.<sup>79</sup>

33. Wind proponents support flexible scheduling practices to allow for schedule adjustments closer to real-time.<sup>80</sup> According to the New York Independent System Operator, Inc. (NYISO), energy imbalance penalties may be reduced with improved tools for forecasting wind flows, which would help level the playing field for intermittent resources to compete with other resources.<sup>81</sup>

34. In addition, some entities ask the Commission to consider providing incentives for wind generators to use state-of-the-art forecasting technologies.<sup>82</sup> On the other hand, Northwestern believes that at a minimum, wind generators should be expected to install and utilize the state-of-the-art tools to forecast the wind and resulting generation levels on

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<sup>78</sup> Northwestern at 5-7.

<sup>79</sup> See, e.g., AWEA at 2-4 and RNP at 3-4.

<sup>80</sup> See, e.g., AWEA at 2-4, RNP at 4.

<sup>81</sup> NYISO at 5-6.

<sup>82</sup> RNP at 4.

an hourly basis.<sup>83</sup> It believes that improved wind generation forecasts may help to reduce imbalance penalties, especially when compared to scheduling practices if the generator makes no effort to adjust real-time schedules from the pre-schedule submitted 24 or more hours in advance.<sup>84</sup> Moreover, it asserts that forecasts may help with the reliability concerns associated with a control area's obligation to balance resources and loads.<sup>85</sup> Calpine argues that, although helpful as planning tools, improved wind forecasts are unlikely to directly affect imbalances that occur in real time. Calpine notes that what may be more promising as a means to reduce imbalances from intermittent resources would be to match up those resources' scheduling with the scheduling of non-intermittent resources that could act as back up. Calpine observes that intermittent resources need scheduling backstopping, especially at peak, when single and combined cycle units, with inherent cycling capability, can be matched to intermittent resources in a manner that optimizes the performance of both.<sup>86</sup>

35. EEI states it is critical that additional scheduling flexibility for wind resources be accompanied by companion requirements that large wind facilities participate in state-of-the-art modeling activities.<sup>87</sup> According to EEI, changes to existing transactions

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<sup>83</sup> Northwestern at 5-7.

<sup>84</sup> Northwestern at 8.

<sup>85</sup> Northwestern at 8.

<sup>86</sup> Calpine at 3.

<sup>87</sup> EEI at 4-5.

scheduling requirements and procedures should recognize that the reliability of wind generation turbine technology has improved significantly and is becoming a reliable source of generation, and that wind energy remains a significantly less predictable source than thermal and hydroelectric generation.<sup>88</sup>

36. Several other proposals to help manage imbalances have been put forth by other commenters. Calpine supports netting arrangements as an effective means of facilitating the participation of intermittent resources in the marketplace and as an efficient means to resolve imbalances generally.<sup>89</sup> In addition, RNP states that the Commission should consider imbalance charges for wind resources that include monthly imbalance netting and settlement at market prices.<sup>90</sup> Zilkha states that the Commission should exempt intermittent resources from imbalance penalties until structural mechanisms are in place that allow suppliers the flexibility to net and trade imbalances over an extended period of time for an entire wind development zone.<sup>91</sup>

37. National Grid supports further development of aggregation of balancing responsibilities among wind developments and assignment or hedging of imbalance risks.<sup>92</sup>

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<sup>88</sup> EEI at 4-5.

<sup>89</sup> Calpine at 2.

<sup>90</sup> RNP at 4.

<sup>91</sup> Zilkha at 5-6.

<sup>92</sup> National Grid at 5-7.

38. Several other issues were discussed by commenters. Zilkha also suggests that the Commission should require transmission providers to undertake studies to assess the extent to which wind generation can be exempt from imbalance and other under-generation charges without adversely affecting system operations.<sup>93</sup>

39. NorthWestern Energy also believes that the intermittent nature of the wind generator creates the need for regulation service beyond the amount a control area operator has available, therefore, the control area operator must have the ability to limit the wind generator to a level necessary to maintain reliability.<sup>94</sup>

40. According to the California Public Utilities Commission (CPUC), the PIRP in place in California is a key tool in helping intermittent resources to operate competitively in the California energy market, as well as contributing to meeting the renewable portfolio standard mandated by the California Legislature in 2002. San Diego Gas & Electric Company (SDG&E) expresses support for the California ISO's existing mechanism for settling wind energy imbalances. According to SDG&E, the California ISO's mechanism allows a Scheduling Coordinators' Ten-Minute Settlement Interval for Wind Energy Imbalances to be accumulated over a month. SDG&E explains that negative imbalances incurred in some settlement intervals can be offset by positive imbalances in other settlement intervals, with only the resulting net monthly imbalance settled financially. SDG&E states that because the settlement prices in different

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<sup>93</sup> Zilkha at 6.

<sup>94</sup> Northwestern at 5-7.

settlement intervals vary, the monthly accumulation and settlement of net imbalances creates implicit cost and revenue shifts, although SDG&E states that these shifts tend to be averaged over many market participants. SDG&E agrees that the benefits of promoting wind energy development offset the imprecise signals introduced through the monthly settlement mechanism for imbalances.<sup>95</sup>

41. The CPUC states that the incremental cost of ancillary services attributable to wind power is low at low wind penetration levels, but the CPUC recognizes that as the wind penetration level increases, so does the cost of ancillary services. The CPUC notes that the aggregation of intermittent resources effectively addresses this problem, to the ultimate benefit of ratepayers.<sup>96</sup>

### **Discussion**

42. The information gathered in the outreach discussions, together with the filed comments, assisted in our understanding of the issues facing wind energy resources securing transmission service using a pro forma tariff under Order No. 888. As a result of our examination of energy imbalance services under Order No. 888 and our subsequent cases regarding generator imbalance services to date, we seek comments on a proposal to establish a new generator imbalance service schedule under the pro forma OATT that would apply to intermittent resources. The new generator imbalance service

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<sup>95</sup> SDG&E at 8.

<sup>96</sup> CPUC at 11.

schedule is necessary to address the unique operating characteristics and constraints of wind generation.<sup>97</sup> The results of our review and our proposal are discussed below.

### **Issues Discussed During Outreach**

43. As follow-up to the Commission's December 1, 2004 technical conference, Commission staff held outreach discussions with industry participants to further explore issues facing wind and other intermittent resources. Many of the outreach discussions echoed those written comments summarized above, however, the outreach discussions were beneficial in capturing some additional issues and possible solutions for Commission consideration. Generally, industry participants are supportive of the development of renewable resources, including wind-powered resources. Many states have established renewable energy portfolio standards which require the utility to maintain a certain percentage of renewable resources in its overall generation portfolio.
44. Discussions with industry participants indicated that a significant percentage of the wind resources are presently contracted for as an integrated resource and used to serve native load on the incumbent transmission provider's system. However, considerable

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<sup>97</sup> In Order No. 888, the Commission recognized that the amount of energy taken by load in an hour is variable and not subject to the control of a wholesale seller or wholesale requirements customer. Accordingly, the Commission established a bandwidth for the energy imbalance service. Order No. 888-A at 30,230. The Commission also found that a generator should be able to deliver its scheduled hourly energy with precision. *Id.* We now recognize that intermittent generators have a limited ability to forecast actual deliveries because their fuel is weather-dependent and they may not be able to deliver scheduled hourly energy with precision. Accordingly, similar to the concern the Commission expressed in Order No. 888 for load, we are proposing to establish a bandwidth for our proposed intermittent generator service schedule that also reflects a wider bandwidth as compared to thermal generators.

interest was expressed in a new business model, i.e., wind resources having the opportunity to access additional customers by, for example, taking transmission service as a customer or selling its output at the busbar to customers other than the incumbent transmission provider. As an entity selling power at the busbar, the wind generator fears that it could be assessed generator imbalance charges if it did not produce the amount scheduled for delivery. As a transmission delivery service customer of the incumbent transmission provider, a wind generator could be assessed a generator imbalance charge for not producing what was scheduled for delivery. Also, in both of these situations, the wind generator would be assessed an energy imbalance charge for not taking the amount of energy scheduled for delivery to load. However, if the wind generator is an integrated resource on the transmission provider's system serving native load, energy imbalances are absorbed by the transmission provider relying on its total portfolio of generation resources.

45. According to some industry participants, the only current profitable way to operate wind generation is as an integrated resource. This is due to the intermittent nature of the resource and the potential cost of imbalance penalties that could accrue. In effect, while wind generators have expressed an interest in availing themselves of the opportunities provided by the OATT, they find that the imbalance rules/requirements present a hurdle in doing so.

46. With regard to imbalance penalties acting as a barrier for wind resource development, some industry participants support exempting wind from assessment of these penalties. However, others state that imbalance penalties were designed to promote

prudent behavior and, even though a wind generator cannot control its fuel source, they believe that the elimination of imbalance penalties may lead to cost-shifts, leaning on the system, bad generator scheduling practices and gaming.

47. Some entities believe that a separate generator imbalance service similar to the energy imbalance service (Schedule 4) should be added as a service schedule under the pro forma OATT, although they noted that there are entities that currently have a generator imbalance service under their OATTs, e.g., PacifiCorp. Certain entities that are developing large wind projects may have successfully negotiated favorable tariff changes with transmission providers, including imbalance penalty provisions that are workable for intermittent resources.

48. Several industry participants believe that the integration of wind into transmission systems, including providing balancing services, will have a physical impact on grid operations and an economic impact on existing customers. However, others allege that most vertically integrated utilities simply use their own generation facilities to provide these services to their customers. Some fear that the costs will rise as increasing amounts of wind are integrated into a system, while others claim that the specific operating characteristics of a system, such as the size of the system and fuel mix, affect their ability to integrate wind.

49. Certain wind interests suggest widening the bandwidth for imbalance deviations to 5 or 10 percent, allowing schedule changes closer to the delivery times, and using an index price/market price/cost of replacement energy to financially settle energy imbalances. Some entities do not want to widen the bandwidths for wind because they

believe the current bandwidth ensures scheduling accuracy, discourages gaming and helps maintain reliability.

50. Although many entities believe that dynamic scheduling could be a useful tool for managing imbalances, they have mixed reactions regarding its cost and applicability. One entity stated that economies of scale allow dynamic scheduling to be cost-effective at 10 MW or more.

51. Commission staff also heard that alternatives to the administratively prescribed \$100/MWh adder penalty would improve the transparency and fairness of imbalance charges. Alternatives to the adder penalty include having imbalance penalties based either on system incremental costs or market indices.

52. Some transmission owners also discussed how to demonstrate the costs of adding wind to the system so that wind could pay its share of the system integration costs. In addition, the issue of increased reserve requirements and how to account for the additional cost associated with such increase was discussed.

### **Commission's Proposed Remedy**

53. The development of renewable sources of energy, including wind resources, brings benefits to energy customers by providing environmental benefits and supports increased reliability by increasing the diversity of energy supplies. Wind energy can satisfy certain federal and state-mandated programs for the development of renewable energy. On balance, however, we also recognize that there are additional costs incurred in integrating wind energy into the system and that each control area, based on its unique characteristics, will be able to accommodate different amounts of wind resources.

54. As a remedy to the issues we have heard, we propose to establish a new generator imbalance service schedule under the pro forma OATT that would apply only to intermittent resources.<sup>98</sup> In the case where a transmission provider's OATT currently includes a generator imbalance charge provision that is more lenient than the charge set forth in Schedule XYZ, we propose that the transmission provider would assess the lesser charge.<sup>99</sup> Moreover, in recognition that some transmission providers assess generator imbalance charges through interconnection agreements rather than OATT provisions, we are soliciting comment on whether to require that, prospectively, any generator imbalance provisions in future interconnection agreements with intermittent generators conform to the provisions in Schedule XYZ.

55. We are proposing not to modify any aspect of the existing energy imbalance service under Schedule 4 of the pro forma OATT, however, we are seeking comment on whether and how we should amend Schedule 4. We seek comment on whether our proposal to create a new and standard intermittent generator imbalance service schedule will help intermittent resources reduce their exposure to imbalance charges and/or penalties.

56. As noted previously, in Order No. 888, the Commission concluded that a generator should be able to deliver its scheduled hourly energy with precision, and

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<sup>98</sup> Attachment A to this NOPR is the proposed Schedule XYZ: Intermittent Generator Imbalance Schedule to be included in all public utilities' tariffs.

<sup>99</sup> We note that, through staff outreach, no intermittent resource indicated that there were not being assessed any imbalance charge.

declined to establish generic standards as part of the pro forma OATT. Instead, it noted that a generator would have an interconnection agreement with its transmission provider or control area operator, and that this agreement should specify the requirements for the generator to meet its schedule, and stipulate any consequence for persistent failure to meet that schedule.<sup>100</sup> The Commission also expressed concern that if it were to allow a generator to deviate from its schedule by more than 1.5 percent without a generator imbalance penalty, even if the energy is returned in kind at another time, it would discourage good generator operating practices.

57. The current treatment of generator imbalances with respect to intermittent resources appears to be unduly discriminatory under section 206 of the Federal Power Act. The Commission allows utilities to charge penalties to deter conduct that could threaten system reliability or service to other customers and provide incentives to conform to good utility practices. A properly designed penalty should also have minimal impacts on market participation. However, penalties should be avoidable by customer actions, and should not limit market participation. Thermal generators are subjected to generator imbalance provisions that are tailored to their abilities and give them an unfair and unduly discriminatory advantage over intermittent resources, which have much less control over their output. On the other hand, intermittent resources are faced with

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<sup>100</sup> Some parties have contractual arrangements for generator imbalance service outside the OATT, others have generator imbalance provisions within their OATT (e.g., generator interconnection agreements), and others apparently have been assessed energy imbalance penalties under Schedule 4 of the OATT for generation shortfalls.

generator imbalance provisions that fail to recognize their unique needs and prevent them from competing on an equal basis with thermal generators. As noted above, penalties must be avoidable by customer actions, and should not limit market participation. Indeed, intermittent resources face charges that they cannot reasonably avoid, while thermal resources, which can control their generation schedules with much more precision, can generally avoid these charges. At this time, the Commission is concerned that existing generator imbalance provisions are unduly discriminatory against wind generators. Accordingly, the Commission is proposing to add a new Generator Imbalance Service, Schedule XYZ, under the pro forma OATT to address generator imbalances for intermittent resources.<sup>101</sup>

58. A major feature of the intermittent generator imbalance service will be the use of a wider deviation bandwidth, which would serve a similar function as the deviation bandwidth for energy imbalance service (Schedule 4). We recognize the necessity of maintaining a deviation bandwidth from the perspective of the transmission provider, but also recognize that some flexibility is needed with respect to intermittent resources and that applying a narrow 1.5 percent bandwidth to intermittent resources would be unduly discriminatory. Specifically, we are proposing an intermittent generator imbalance

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<sup>101</sup> We note that several transmission providers already have generator imbalance service provisions in their OATTs. However, we will not use these existing provisions as a basis for the new proposed Schedule XYZ since the existing provisions were adopted with thermal generators in mind and do not address the inherent scheduling problems associated with intermittent resources. If the Commission decides to adopt Schedule XYZ in a final rule, the conforming changes will be required to be submitted to the existing generator imbalance service schedules contained in the OATTs.

bandwidth of +/-10 percent for the amount scheduled to be generated for each generating hour (with a minimum of 2 megawatts). The intermittent generator imbalance service schedule will include the 2 MW minimum bandwidth in order to meet the needs of small generators. Thus, an intermittent generator of less than 20 MW will have a higher percentage bandwidth, for example, a 2 MW minimum bandwidth for an intermittent generator with a capacity of 10 MW is in effect a deviation bandwidth of 20 percent.

59. The Commission proposes that net hourly deviations within the +/- 10 percent bandwidth will be priced at the transmission provider's system incremental cost at the time of the deviation. Net hourly deviations outside the stated bandwidth will be priced at the transmission provider's system incremental cost +/- 10 percent. For example, if an intermittent generator generates in excess of 110 percent of its schedule, it will be paid at 90 percent of the transmission provider's system decremental cost. If the intermittent generator produces less than 90 percent of its schedule, it will be charged 110 percent of the transmission provider's system incremental cost for the difference.<sup>102</sup> While intermittent generators may be unable to change output in real time to meet schedules, with reasonable forecasting and changes to schedules up to 20 minutes before the hour, these generators should be able to limit the charges for exceeding the 10 percent bandwidth on a net hourly basis. We note that the proposed pricing structure may create

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<sup>102</sup> This net hourly pricing mechanism is consistent with the mechanism most transmission providers typically use for energy imbalance service under Schedule 4 of the pro forma OATT. In addition, those transmission providers that have added a generator imbalance provision to their OATT, have typically priced imbalances using system incremental cost.

an incentive to underschedule in an effort to reduce exposure to being charged 110 percent of the transmission provider's system incremental cost. The Commission is soliciting comment on alternative pricing structures.

60. In addition, the Commission is seeking comment regarding the merits of providing an evaluation that would identify systematic and/or significant deviations or biases in actual production as compared to the submitted schedule. Aggregation and netting of hourly schedule deviations over a 12 or 24 month time period could provide a reasonable time period for this evaluation. Any deviation would then be compared to a to-be-established bandwidth. We seek comments on evaluation methods and bandwidths to achieve this objective.

61. The Commission seeks comment on this proposed bandwidth and the applicable pricing mechanisms. Particularly, the Commission is interested in comments addressing whether a different bandwidth is better suited for application to generation deviations for intermittent resources. The Commission is also interested in comments regarding the appropriate levels to price deviations inside the bandwidth and deviations that exceed the bandwidth. In addition, some wind resources have requested that there should be no bandwidth for imbalances incurred by intermittent resources. We believe that "no bandwidth" means that the transmission customer would be charged a fixed charge (e.g., 100 percent of system incremental cost or 90/110 percent of the system incremental cost) regardless of the size of the generator imbalance. Therefore, the Commission seeks comment on whether not having a bandwidth is appropriate for intermittent resources and, in the absence of a bandwidth, what are the appropriate levels to price deviations.

### Scheduling Flexibility

62. Under Order No. 888, all transmission customers must submit a schedule one day in advance. Order No. 888-A recognizes that transmission customers can reduce their costs by making schedule changes up to 20 minutes before the hour at no charge. It has been asserted that technological improvements since the issuance of Order No. 888 allow these schedules to be adjusted and acted on very close to real time at no additional cost to the transmission customer.

63. Due to the nature of the intermittent resource, being able to schedule as close to the start of the operating hour as possible provides for the highest degree of accuracy.<sup>103</sup> Market Participants have expressed concerns that not all transmission providers allow for schedule changes within the timeframe currently allowed under the pro forma tariff (i.e., 20 minutes before the hour). In addition, of those transmission providers that do conform to the pro forma scheduling provisions, it is claimed that some calculate deviations based on the difference between the amount generated and the amount scheduled in the Day-

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<sup>103</sup> Significant improvements in collecting and compiling accurate weather information and forecasting the speed of wind may have substantially reduced the difference between estimated and actual wind power production/transmission volumes. Two types of forecasting are done: 'State of the Art Forecasting' which is characterized by the use of atmospheric modeling and/or mass motion modeling, and a basic persistence forecasting technique. A persistence forecast is accurate in the short term but degrades faster than a more robust State of the Art Forecast. These two methods of forecasting can result in varying expectations and planning time horizons between users. Electric Power Research Institute, California Wind Energy Forecasting System Development and Testing Phase 2: 12 Month Testing, July 2003 (EPRI Report No. 1007339).

Ahead timeframe. This would appear to be inconsistent with the original intent of the Commission to allow for schedule changes up to 20 minutes before the hour in order to minimize exposure to imbalances.

64. We believe that the flexibility to modify a schedule up to 20 minutes before the hour, as the pro forma tariff currently allows, will be a valuable tool to assist intermittent generators in minimizing exposure to the costs associated with imbalances. In addition, by allowing intermittent generators to modify their schedules closer to real-time based on more accurate forecast information, we believe that the transmission provider will have more accurate operating information and be better equipped to operate the system in a reliable and efficient manner. Therefore, we reiterate that our intent in Order No. 888 was that transmission providers must allow transmission customers to modify schedules up to 20 minutes before the hour and that any net hourly imbalance calculation will be determined from the last accepted schedule. We seek comment on whether this scheduling flexibility, with other changes proposed above, will help encourage wind generators to schedule as accurately as possible and while avoiding generator imbalance charges outside the +/- 10 percent bandwidth. We seek comment on whether allowing schedule changes up to 20 minutes before the hour and making a schedule financially binding will prevent or create a hardship in instances where the Commission has already accepted proposals based on existing regional variations.

#### **Other Proposals to Resolve Imbalances**

65. As noted above, several entities have proposed additional ways to reduce imbalances, and thus reduce or eliminate charges and/or penalties. These include

matching up intermittent resources scheduling with the scheduling of non-intermittent resources that could act as a back up; netting arrangements; settling arrangements; trading arrangements; aggregation of balancing responsibility among wind developments; assignment or hedging of imbalance risks; and dynamic scheduling. We seek comment on how these terms and mechanisms or arrangements would reduce generator imbalances, as well as seek sample proposals of such mechanisms or arrangements that currently exist. We also seek comment on any other proposal not listed above that would reduce generator imbalances.

#### Miscellaneous

#### **Control Area Utilities versus Non-Control Area Utilities**

66. OMPA, TAPS and AWEA allege that under many tariffs today, non-control area utilities are subject to energy imbalance penalty charges for deviations that control area utilities may treat as inadvertent energy subject to return-in-kind requirements, making it prohibitive for transmission dependent utilities that are not control areas to participate in wind generation.<sup>104</sup> TAPS argues that a transmission dependent utility (OMPA) and a control area operator (Oklahoma Gas & Electric Company (OG&E)), demonstrate the highly discriminatory impacts of the imbalance penalties. It asks the Commission to

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<sup>104</sup> TAPS argues that the inherently unpredictable and intermittent nature of wind power heightens the magnitude and discriminatory nature of this continued treatment, and discourages non-control area utilities from developing and participating in wind resources.

promptly address the disparate and punitive treatment of energy imbalance under Schedule 4 of the Open Access Transmission Tariff.

67. TAPS asserts that not only is OG&E exempt from paying energy imbalance penalties, but it receives the imbalance charges levied upon OMPA furthering the competitive disadvantage. TAPS argues that transmission dependent utilities should not have to wait for introduction of real-time RTO energy markets in order to escape discriminatory treatment of imbalances. OMPA suggests that regardless of whether a customer is inside a control area or outside, if the tariff were applied equally, both customers would face the same costs.

68. We believe that this issue is beyond the scope of this proceeding, and therefore, it will be addressed at a later time.

#### **Variations from Schedule XYZ**

69. The Commission is proposing to permit public utilities to justify variations from the terms of the final Schedule XYZ using the approach taken in Order No. 2003. In Order No. 2003, the Commission modified the approach taken in Order No. 888,<sup>105</sup> which allowed two types of variations. First, transmission providers may seek variations to the pro forma OATT based on regional reliability requirements.<sup>106</sup> Second, transmission providers may argue that proposed changes to any OATT provision are

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<sup>105</sup> Order No. 888 at 31,760-1.

<sup>106</sup> See Order No. 2003 at P 823-24.

“consistent with or superior to” the terms of the pro forma OATT.<sup>107</sup> Additionally, since Order No. 2003 allows RTOs and ISOs greater flexibility in complying with its provisions,<sup>108</sup> we are proposing to that they may seek an “independent entity variation” from the pricing and non-pricing provisions of the pro forma Schedule XYZ. The Commission intends to apply all three of these variation standards to the proposed variations from Schedule XYZ the Commission finally adopts in this proceeding.

### **Implementation**

70. As noted above, the Commission has previously accepted proposals by transmission providers to amend their OATTs to specifically include a generator imbalance schedule. In doing so, the Commission permitted the transmission provider to collect the generator imbalance charge from the transmission customer. Specifically, the Commission concluded that there was nothing inherently unreasonable about holding the transmission customer responsible for ensuring that the amount of energy scheduled for its transaction is delivered to the transmission provider.<sup>109</sup> We note that the pro forma OATT currently does not contain a provision that would permit the transmission provider to collect the generator imbalance charge proposed herein from the generator.

71. Accordingly, the Commission is soliciting comments on how best to implement this new generator imbalance service schedule. Specifically, should the transmission

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<sup>107</sup> See id. at P 816.

<sup>108</sup> See id. at P 822-27; see also Order No. 2003-A at P 48.

<sup>109</sup> Florida Power Corporation, 89 FERC ¶ 61,263 (1999).

provider collect generator imbalance charges from the transmission customer with the transmission customer recovering these charges through a separate agreement with the generator, or should the transmission provider collect generator imbalance charges from the generator pursuant to an arrangement in its interconnection agreement pursuant to Order No. 2003-B? If the transmission provider collects payment from the generator, how should the pro forma agreement between the transmission provider and the generator be structured?

### **Information Collection Statement**

72. Office of Management and Budget (OMB) regulations require OMB to approve certain information collection requirements imposed by agency rule.<sup>110</sup> Comments are solicited on the Commission's need for this information, whether the information will have practical utility, the accuracy of provided burden estimates, ways to enhance the quality, utility and clarity of the information to be collected, and any suggested methods for minimizing respondents' burden, including the use of automated information techniques.

### 73. Public Reporting Burden:

Data Collection	No. of Respondents	No. of Responses	Hours Per Response	Total Annual Hours
FERC-516	238	1	2	476

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<sup>110</sup> 5 CFR 1320.11 (2004).

74. Information Collection Costs: The Commission seeks comments on the costs to comply with these requirements. It has projected the annualized cost for all respondents to be: Annualized Capital/Startup Costs-Staffing requirements to review and prepare an intermittent resource imbalance service schedule = \$71,400. (238 respondents x \$150 hourly rate x 2 hours per respondent).

75. The OMB regulations require OMB to approve certain information collection requirements imposed by agency rule.<sup>111</sup> Accordingly, pursuant to OMB regulations, the Commission is providing notice of its proposed information collections to OMB.

Title: FERC-516, Electric Rate Schedule Filings

Action: Proposed Information Collection.

OMB Control No.: 1902-0096

The applicant shall not be penalized for failure to respond to this collection of information unless the collection of information displays a valid OMB control number.

Respondents: Business or other for profit.

Frequency of Responses: One-time implementation.

Necessity of Information: The proposed rule would revise the requirements contained in 18 CFR Part 35. The Commission is seeking to create a new service schedule under the pro forma OATT to address generator imbalance energy for intermittent resources. In particular, the Commission will propose that public utilities add a new service schedule for under their OATTs which provides for generator

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<sup>111</sup> Id.

imbalance service for intermittent resources. The new service schedule establishes a deviation bandwidth and stipulates pricing of intermittent resource imbalance energy inside and outside the bandwidth. The proposed rule would require that each public utility that owns, operates, or controls transmission facilities participate in one-time filings incorporating the new service schedule into their own open access transmission tariffs.

Internal Review: the Commission has assured itself, by means of internal review, that there is specific, objective support for the burden estimates associated with the information collection requirements. The Commission's Office of Market, Tariffs and Rates will use the data included in filings under section 205 of the Federal Power to adopt provisions for imbalance services for intermittent resources. These information requirements conform to the Commission's plan for efficient information collection, communication, and management within the electric power industry. Interested persons may obtain information on the reporting requirements by contacting: Federal Energy Regulatory Commission, the difference between forward market schedules and metered output 888 First Street, N.E., Washington, D.C. 20426, Attention: Michael Miller, Office of the Executive Director, phone: (202) 502-8415, fax: (202) 273-0873, e-mail: michael.miller@ferc.gov. Comments on the proposed requirements of the subject rule may also be sent to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, D.C. 20503, Attention: Desk Officer for the Federal Energy Regulatory Commission, phone: (202) 395-4650.

### **Environmental Analysis**

76. The Commission is required to prepare an Environmental Assessment or an Environmental Impact Statement for any action that may have a significant adverse effect on the human environment.<sup>112</sup> The Commission has categorically excluded certain actions from this requirement as not having a significant effect on the human environment. Included in the exclusion are rules that are clarifying, corrective, or procedural, or that do not substantially change the effect of the regulations being amended.<sup>113</sup> The exclusion also includes information gathering, analysis, and dissemination.<sup>114</sup> The rules proposed in this NOPR would update and clarify the application of a new generator imbalance service schedule to the Commission's pro forma to intermittent resources. Therefore, this NOPR falls within the categorical exemptions provided in the Commission's Regulations, and as a result neither an environmental impact statement nor an environmental assessment is required. Additionally, we note that this proposed rule will help the development and interconnection of wind plants, eliminating the airborne and other emissions that would result from constructing fossil fuel generating plants instead.

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<sup>112</sup> Order No. 486, Regulations Implementing the National Environmental Policy Act, 52 FR 47897 (Dec. 17, 1987), FERC Stats. & Regs. Preambles 1986-1990 ¶ 30,783 (1987).

<sup>113</sup> 18 CFR 380.4(a)(2)(ii) (2004).

<sup>114</sup> 18 CFR 380.4(a)(5) (2004).

### **Regulatory Flexibility Act Certification**

77. The Regulatory Flexibility Act of 1980 (RFA)<sup>115</sup> generally requires a description and analysis of final rules that will have significant economic impact on a substantial number of small entities.

78. The Commission does not believe that this proposed rule would have such an impact on small entities. Most filing companies subject to the Commission's jurisdiction do not fall within the RFA's definition of a small entity.<sup>116</sup> Further, the filing requirements contain standard generator interconnection procedures and agreement for interconnecting generators larger than 20 MW, which exceeds the threshold of the Small Business Size Standard of NAICS. Therefore, the Commission certifies that this rule will not have a significant economic impact on a substantial number of small entities.

### **Comment Procedures**

79. The Commission invites interested persons to submit comments on the matters and issues proposed in this notice to be adopted, including any related matters or alternative proposals that commenters may wish to discuss. Comments are due **[insert 30 days**

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<sup>115</sup> 5 U.S.C. 601-612

<sup>116</sup> 5 U.S.C. 601(3), citing to section 3 of the Small Business Act, 15 U.S.C. 632. Section 3 of the Small Business Act defines a "small-business concern" as a business which is independently owned and operated and which is not dominant in its field of operation. The Small Business Size Standards component of the North American Industry Classification System defines a small utility as one that, including its affiliates is primarily engaged in the generation, transmission, or distribution of electric energy for sale, and whose total electric output for the preceding fiscal years did not exceed 4 MWh. 13 CFR 121.201 (Sector 22, Utilities, North American Industry Classification System, NAICS) (2004).

**from publication in the FEDERAL REGISTER].** Comments must refer to Docket No. RM05-10-000, and must include the commenter's name, the organization they represent, if applicable, and their address in their comments. Comments may be filed either in electronic or paper format.

80. Comments may be filed electronically via the eFiling link on the Commission's web site at <http://www.ferc.gov>. The Commission accepts most standard word processing formats and commenters may attach additional files with supporting information in certain other file formats. Commenters filing electronically do not need to make a paper filing. Commenters that are not able to file comments electronically must send an original and 14 copies of their comments to: Federal Energy Regulatory Commission, Office of the Secretary, 888 First Street N.E., Washington, DC, 20426.

81. All comments will be placed in the Commission's public files and may be viewed, printed, or downloaded remotely as described in the Document Availability section below. Commenters on this proposal are not required to serve copies of their comments on other commenters.

### **Document Availability**

82. In addition to publishing the full text of this document in the Federal Register, the Commission provides all interested persons an opportunity to view and/or print the contents of this document via the Internet through FERC's Home Page (<http://www.ferc.gov>) and in FERC's Public Reference Room during normal business hours (8:30 a.m. to 5:00 p.m. Eastern time) at 888 First Street, N.E., Room 2A, Washington D.C. 20426.

83. From FERC's Home Page on the Internet, this information is available in the Commission's document management system, eLibrary. The full text of this document is available on eLibrary in PDF and Microsoft Word format for viewing, printing, and/or downloading. To access this document in eLibrary, type the docket number excluding the last three digits of this document in the docket number field.

84. User assistance is available for eLibrary and the FERC's website during normal business hours. For assistance, please contact FERC Online Support at [FERCOnlineSupport@ferc.gov](mailto:FERCOnlineSupport@ferc.gov). or toll free at (866)208-3676, or for TTY, (202)502-8659. E-Mail the Public Reference Room at [public.referenceroom@ferc.gov](mailto:public.referenceroom@ferc.gov) or 202-502-8371.

List of subjects in 18 CFR Part 35  
Electric power rates; Electric utilities.

By direction of the Commission.

Linda Mitry,  
Deputy Secretary.

In consideration of the foregoing, the Commission proposes to amend Part 35, Chapter I, Title 18, Code of Federal Regulations, as follows.

**PART 35 – FILING OF RATE SCHEDULES**

1. The authority citation for part 35 continues to read as follows:

**Authority:** 16 U.S.C. 791a-825r, 2601-2645; 31 U.S.C. 9701; 42 U.S.C. 7101-7352.

2. In § 35.28, the last sentence in the paragraph (d) introductory text is revised, and paragraph (g) is added to read as follows:

§ 35.28 Non-discriminatory open access transmission tariff.

\* \* \* \* \*

(d) Waivers. \* \* \* Except as provided in paragraph (f) and (g) of this section, an application for waiver must be filed either:

\* \* \* \* \*

(g) Intermittent generator imbalance service.

(1) For purposes of this section, an intermittent resource is an electric generator that is not dispatchable and cannot store its fuel source and therefore cannot respond to changes in system demand or respond to transmission security constraints.

(2) Every public utility that is required to have on file a non-discriminatory open access transmission tariff under this section must amend such tariff by adding the intermittent generator imbalance service schedule contained in Order No. \_\_\_\_\_, FERC Stats. & Regs. ¶ \_\_\_\_\_ (Final Rule on Imbalance Provisions for Intermittent Resources),

or such other intermittent generator imbalance service schedule as may be approved by the Commission consistent with the Final Rule on Imbalance Provisions for Intermittent Resources.

(i) The amendment required by the preceding subsection must be filed no later than [insert date 60 days after publication in the FEDERAL REGISTER].

(ii) Any public utility that seeks a deviation from the intermittent generator imbalance schedule contained in Order No. \_\_\_\_\_, FERC Stats. & Regs. ¶ \_\_\_\_\_ (Final Rule on Imbalance Provisions for Intermittent Resources), must demonstrate that the deviation is consistent with the principles of Order No. \_\_\_\_\_, FERC Stats. & Regs. ¶ \_\_\_\_\_ (Final Rule on Imbalance Provisions for Intermittent Resources).

(3) The non-public utility procedures for tariff reciprocity compliance described in paragraph (e) of this section are applicable to the intermittent generator imbalance service schedule.

(4) A public utility subject to the requirements of this paragraph may file a request for waiver of all or part of the requirements of this paragraph, for good cause shown. An application for waiver must be filed either:

(i) No later than [insert date 60 days after publication in the FEDERAL REGISTER], or

(ii) No later than 60 days prior to the time the public utility would otherwise have to comply with the requirements of this paragraph.

The following Appendices will not be published in the Code of Federal Regulations.

#### Attachment A

#### Schedule XYZ: Intermittent Generator Imbalance Service

Intermittent Generator Imbalance Service is provided when a difference occurs between the output of an intermittent generator located in the Transmission Provider's Balancing Area and a delivery schedule from that generator to (1) another Balancing Area or (2) a load within the Transmission Provider's Balancing Area over a single hour. The Transmission Provider must offer this service when the transmission service is used to deliver energy from an Intermittent Generator located within its Balancing Area that is not identified in Appendix 1 to this Schedule. The Transmission Customer must either purchase this service from the Transmission Provider or make alternative comparable arrangements to satisfy its Intermittent Generator Imbalance Service obligation. To the extent the Balancing Authority performs this service for the Transmission Provider, charges to the Transmission Customer are to reflect only a pass-through of the costs charged to the Transmission Provider by that Balancing Authority. For a single event where a Generator Imbalance occurs, but is offset by a corresponding Energy Imbalance, only the Generator Imbalance charge will be assessed. The Transmission Provider shall establish a deviation band of +/- 10 percent (with a minimum of 2 MW) of the scheduled transaction to be applied on a net hourly basis to any Intermittent Generator Imbalance that occurs as a result of the Transmission Customer's scheduled transaction(s). All Intermittent Generator Imbalances will be subject to charges set forth below. All Intermittent Generator Imbalances will be subject to the lesser of the charges set forth below or the charges that would have been assessed under this tariff if the Generator were not an Intermittent Generator.

Charges for Intermittent Generator Imbalance Service: Described below is the methodology for calculating the charges applicable to Intermittent Generator Imbalances.

##### 1) Net Hourly Intermittent Generator Imbalances Within the Deviation Band.

For each hour when the Intermittent Generator's actual generation exceeds the amount of generation scheduled but is within the deviation band as provided in this Schedule, the Transmission Provider shall compensate the Transmission Customer at a rate equal to 100 percent of the Transmission Provider's System Decremental Cost at the time of the deviation.

For each hour when the intermittent generator's actual generation is below the amount of generation scheduled but is within the deviation band as provided in this Schedule, the Transmission Customer shall compensate the Transmission Provider at a rate equal to 100 percent of the Transmission Provider's System Incremental Cost.

2) Net Hourly Generator Imbalances Outside the Deviation Band.

For each hour when the Intermittent Generator's actual generation exceeds the amount of generation scheduled but is outside the deviation band (i.e., produces 110 percent or more its schedule) as provided in this Schedule, the Transmission Provider shall compensate the Transmission Customer at a rate equal to 90 percent of the Transmission Provider's System Decremental Cost at the time of the deviation.

For each hour when the Intermittent Generator's actual generation is below the amount of generation scheduled but outside the deviation band (i.e., produces 90 percent or less of its schedule), as provided this Schedule, the Transmission Customer shall compensate the Transmission Provider at a rate equal to 110 percent of the Transmission Provider's System Incremental Cost at the time of the deviation.

Attachment: List of Commenters in Docket No. AD04-13-000

American Public Power Association  
American Wind Energy Association (AWEA) (Filed pre- and post-technical conference comments and March 10, 2005 comments.)  
Arkansas Public Service Commission (Arkansas Commission)  
California Edison Company  
California Energy Commission  
California Public Utilities Commission (California PUC)  
California Wind Energy Association  
Calpine Corporation (Calpine)  
Edison Electric Institute, et al. (EEI)  
Electric Power Supply Association (EPSA)  
National Grid USA (National Grid)  
National Wind Coordinating Committee  
New York Independent System Operator, Inc. (NYISO)  
New York State Department of Public Service  
NorthWestern Energy Corporation (NorthWestern Energy)  
Oklahoma Municipal Power Authority (OMPA)  
PacifiCorp  
Pacific Gas and Electric Company  
PJM Interconnection L.L.C.  
Renewable Northwest Project (RNP)  
San Diego Gas and Electric (SDG&E) (Comments filed late.)  
Transmission Access Policy Study Group (TAPS) (Filed pre- and post-technical conference comments.)  
Wind West Wires  
Western Interstate Energy Board  
Xcel Energy Services, Inc. (Xcel)  
Zilkha Renewable Energy (Zilkha)

Note: Not all the commenters listed above addressed the imbalance issue.