

Single Electricity Market

Generator Transmission Use of System Charging – 2011/2012 Indicative tariffs

Consultation paper

3 June 2011

SEM-11-036

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1 INTRODUCTION

The development of harmonised all-island transmission charge and losses arrangements was an objective stated in the original Single Electricity Market (SEM) high level design¹. It was also stated as an objective that the harmonised transmission arrangements should provide locational signals to users that reflect the costs that they impose on the transmission system.

The SEM Committee considers that transmission arrangements should provide appropriate signals to transmission users of the costs that they impose on the transmission system. On the basis of these signals, users can make informed decisions concerning their use of the transmission system. This should, other things being equal, lead to more efficient development and use of the transmission system.

The Transmission Use of System (TUoS) charging arrangements should set charges that appropriately reflect transmission investment costs linked to system usage. On this basis, each Generator's TUoS charge should be reflective of transmission investment costs linked to its own use of the system. Those participants that drive investment pay higher tariffs. In response to signals provided via cost-reflective charges, generators are able to make informed decisions concerning their own system usage. This should promote efficient use of the system by generators, which should, in turn, facilitate efficient investment in the transmission system overall.

The Generator TUoS charges should, therefore, provide signals that enhance the efficiency of network investment in the longer-term.

The purpose of this SEM Generator TUoS consultation paper is to outline for comment by stakeholders:

- Indicative all-island Generator TUoS tariffs proposed by the TSOs to the SEM Committee for the tariff year 1st October 2011 to 30th September 2012 (please refer to Appendix A); and
- A Generator TUoS methodology statement developed by the TSOs, which details the steps taken by the TSOs in calculating these indicative tariffs (please refer to SEM-11-037).

The RAs and TSOs will also hold a joint workshop on these indicative Generator TUoS tariffs on Wednesday 22 June 2011 in the Crowne Plaza Hotel, Dundalk starting at 10:00 am. All interested parties are welcome to attend. Further details on the workshop are provided below in section 3.

It should be noted that the accompanying indicative Generator TUoS tariffs are intended for consultation and subject to finalisation after the following:

- June 2011 Generator TUoS workshop;

¹

AIP/SEM/42/05.

- Review of responses received to this consultation;
- SEMC decision on issues outlined in SEM-11-018²; and
- CER and NIAUR decisions on allowed jurisdictional 2012 Transmission revenues.

Responses to this SEM Committee publication should be submitted to Jamie Burke (jburke@cer.ie) in the CER and Billy Walker in the UREGNI (Billy.Walker@uregni.gov.uk) by 5pm Friday 15 July 2011.

Unless marked confidential, all responses will be published by placing them on the AIP website at the following address <http://www.allislandproject.org/>

² *Locational Signals Project: All-Island Generator TUoS*

2 BACKGROUND

At present, different transmission charging methodologies apply in each jurisdiction. In Northern Ireland, a common, non-locationally varying £/MW capacity charge is levied upon all eligible Generators such that 25% of allowed transmission revenue is recovered from Generators. In the Republic of Ireland, Generator TUoS charges vary by location. Each Generator's charge is determined based upon its use of the system as determined by load flow modelling. As in Northern Ireland, 25% of allowed transmission revenue is recovered from Generators.

Generator TUoS tariffs are usually charged on capacity basis (MW). This is appropriate considering that transmission costs are largely associated with the recovery of lumpy fixed investments. Therefore, the cost is not linearly related to the actual usage by the Generator, but to the requirement to put in place the network to facilitate that usage, as and when required.

Efforts to harmonise Generator TUoS arrangements (by moving towards an approach which delivers locationally varying TUoS charges) have been ongoing for a number of years. However, during the process market participants raised a number of concerns relating to the impact of the proposals, particularly tariff volatility between years and the robustness of the methodology. Given these concerns, the SEM Committee took the decision³ to defer the harmonisation of Generator TUoS charging arrangements.

It was decided to combine this workstream with the treatment of losses and a locational signals project has now been ongoing since January 2009 involving the TSOs and RAs and in consultation with industry. This project undertook to examine options for the introduction of harmonised all-island Generator TUoS charging and Transmission Loss Adjustment Factors (TLAFs).

The process to date in relation to Generator TUoS is as follows:

- in January 2009, at the request of the SEM Committee, the Transmission System Operators (TSOs) initiated the review of locational signals provided by generator TUoS charges and TLAFs (SEM-09-001);
- in May 2009, the TSOs published a consultation paper (SEM-09-049) which presented a range of potential methodology options in respect of generator TUoS and TLAFs⁴;
- based on feedback provided to the May 2009 consultation, in November 2009 the TSOs published a further consultation paper (SEM-09-107) in which they set out their preferred options for both generator TUoS and TLAFs⁵;

³ AIP/SEM/08/087.

⁴ Please see following link:

http://www.allislandproject.org/en/transmission_current_consultations.aspx?article=135317f0-49cd-4f7c-b0a3-fb4b75c84bc3

- in November 2009 the TSOs held a workshop in Dundalk where they presented on their preferred options outlined in SEM-09-107. The SEM Committee also presented on their perspective at the workshop and participants were invited to comment on the TSOs preferred options⁶;
- in February 2010, having considered responses to the November 2009 consultation, the TSOs provided a formal response to the SEM Committee in which they set out their updated position and recommendations;
- in December 2010 the SEM Committee endorsed the proposal of the TSOs to proceed with a 'dynamic' forward looking locational signal model of tariffing for Generators, as outlined in "*All-Island Generator Transmission Use of System Charging*" decision paper" (SEM-10-081)⁷. The main aim of the Dynamic plus Postage Stamp methodology is to differentiate the impact that participants have on the transmission systems through providing a forward looking locational signal. By using this methodology it is intended to give appropriate entry and exit locational signals to Generators. The tariff design also includes a postage stamp element that seeks to recover, on a pro-rata basis, the sunk network costs;
- in April 2011 the RAs published a consultation paper (SEM-11-018)⁸ which set out some of the detailed issues required to implement SEM-10-018, as well as other clarification areas. SEM-11-018 was formulated by the TSOs with input and advice from the RAs. It discussed and provided recommendations on a number of specific issues:

1. Calculation methods for All-Island Generator TUoS Tariffs

The harmonised all-island Generator TUoS must ultimately recover the allowable transmission revenue requirement relating to network costs. The application of all-island calculated tariffs, which are collected jurisdictionally, will result in one jurisdiction under-recovering compared to their jurisdictional allowed revenue and the other over-recovering. Consequentially cross-border financial flows will occur to ensure adequate revenue recovery in each jurisdiction.

⁵ Please see following link:

http://www.allislandproject.org/en/transmission_current_consultations.aspx?article=c4fdb48e-4a1a-44d6-848d-af13746ddcb8

⁶ Ibid

⁷ Please see the following link:

http://www.allislandproject.org/en/transmission_decision_documents.aspx?article=5b96c825-702f-4e71-9ddc-7f655c4817d0

⁸ Please see the following link:

http://www.allislandproject.org/en/transmission_current_consultations.aspx?article=92ea5638-c7d6-47b1-8405-fc36c83ae2bb

2. Fixed Tariff Options

A key concern of the SEM Committee relates to the potential for year to year volatility as a result of the locational signal algorithm. Therefore, the SEM Committee indicated in SEM-10-081 that tariffs should be fixed for a period of five years. However, a fixed tariff methodology may materially impact on the 75:25 split between supplier and generation TUoS. The SEM Committee requested that the TSOs prepare a recommendation on how this can be best be dealt with or to develop alternative options to achieve the appropriate level of stability. It is in this context that the TSOs recommended in SEM-11-018 that the fixed option, termed 'fixing the tariff relativity', be adopted.

3. Non-Firm Generator TUoS.

This issue considers the appropriateness of levying Generator TUoS tariffs on non-firm generators, and whether it is appropriate to charge both firm and non-firm on the same capacity (MW) basis.

4. Charging Distribution Connected Generators TUoS – Threshold Level

The current threshold level for charging TUoS to distributed connected generators is 10 MW, i.e. all distributed connected generators with an MEC below that level are not charged TUoS. The paper discussed whether it is appropriate to lower this threshold to 5 MW given the changing generation portfolio on the island and the increase in the distributed connected renewable generation.

The RAs and the TSOs are currently independently reviewing the responses to SEM-11-018. The TSOs will consider whether to revise their recommendations based on the responses received. It should be noted that the RAs will also assess the recommendations advanced by the TSOs, in light of the responses received to SEM-11-018 and will decide whether they are the appropriate measures to implement. The intent is that a SEMC decision will be made on all these matters, including the attached indicatives, in a final decision paper by August 2011.

One of the next steps of the December 2010 paper was for the TSOs to develop indicative 2011/2012 Generator TUoS for consultation, based on the methodology approved by the SEM Committee in SEM-10-081. These indicative tariffs have now been developed and are now published for consultation with stakeholders. An all-island Generator TUoS methodology statement, which details the steps taken by the TSOs in calculating these indicative tariffs, is also published alongside this paper.

3 GENERATOR TUOS METHODOLOGY

The SEM Committee decided to implement the ‘Dynamic plus Postage Stamping’ methodology as the all-island Generator TUoS methodology in SEM-10-081. The full details of the decision are outlined in section 4 of that paper. However, there are a number of outstanding issues outlined in section 5 of SEM-10-081 which require consultation with stakeholders. These issues are consulted upon in the accompanying TSOs Generator TUoS methodology statement (SEM-11-037). They are:

Issue	G-TUoS methodology statement proposal
The basis for identifying the assets to be charged for locationally;	Section 3.1 of statement – identifying assets through use of the separate 7 years TSOs Transmission Forecast Statement.
The method for valuing the assets	Section 6.1 of statement – method used is Modern Equivalent Asset Value (MEAV)
The time period over which the selected assets are to be considered as being locational, both pre- and post-investment	Section 6 of statement – assets will be considered locational 5 years pre-commissioning and 7 years post-commissioning. After this 12 year period the asset will not be part of the locational charge and will therefore be postalised.
The utilisation of locational circuits	Section 6.1 of statement – for example if Generator X is causing a flow of 10MW on a line with total capacity of 100MW and the flow from generator X is in the dominant direction of the flow on the line then this generator will pay 10% of the annual NPV replacement cost of the circuit.
Consistency of treatment between existing and new generators	Section 6 - assets will be considered locational 5 years pre-commissioning and 7 years post-commissioning. This will avoid a ‘free-rider’ approach where new Generators don’t pay for usage of assets which are still being charged on a locational basis.
The methodology for fixing G-TUoS tariffs for a five year period	Not covered in statement - This issue has been separately consulted on in SEM-11-018.

Full details on the above can be found SEM-11-037, which is for consultation with stakeholders.

4 INDICATIVE TARIFFS

SEM-10-081 approved a methodology which included the following:

- Uses a combination of postalised and locational elements;
- Uses static network charging based on the MEAV as the basis for the postalised element;
- Uses the dynamic network based on the value of planned future network as the basis for the locational element; and
- Uses multiplicative scaling separately on the total postalised and locational charges resulting from the above approaches to scale to maximum 30% and 70% respectively of the required revenue for a given year.

As noted above the locational element of the methodology will collect up to 30% of the allowed revenue allocated to Generators. The remaining amount will be collected through a postage stamp methodology. The split between the two elements balances the need for stability with the need for differentiation to drive efficiency.



SEM-10-081 requested that the TSO's develop indicative tariffs for 2011/12 based on the locational/postage stamp approved methodology. The remainder of this paper outlines the details of these indicative tariffs. The full list of indicative tariffs for each individual network bus is included in Appendix A.

Assumed revenue requirement

For the indicative tariffs, the TSOs have assumed the following transmission revenues to be recovered from Generators:

All Island Revenue =	€60m
ROI Revenue =	€50m
NI Revenue =	€10m

Please note that this is an assumed revenue requirement proposed by the TSOs. The respective Regulatory Authorities, CER for Ireland and NIAUR for Northern Ireland are separately responsible for approving total transmission revenues in each of the two jurisdictions. Therefore there may be changes to the total revenue requirement for Generator TUoS tariffs for 2011/12 as a result of the CER and NIAUR decisions. Any such changes will be included in the final decision on Generator TUoS tariffs for 2011/2012.

Comparison of Indicative Tariffs to 2010/11 tariffs

In considering the proposed indicative tariffs, the SEM Committee has noted that there are considerable differences between the published approved jurisdictional 2010/2011 Generator TUoS rates and the indicatives for 2011/2012 in Appendix A. The table below shows there is limited benefit in terms of establishing a relationship between them, as the two sets of tariffs methodology used in the two tariff calculations are different.

Figure 1: Comparison of 2010/2011 with 2011/2012 tariffs

	Indicative Tariffs 2011/2012	ROI Current Tariffs 2010/2011	NI Current Tariff 2010/2011
Model description	Dynamic + postage stamp	Static+ postage stamp	Postage stamp
Jurisdiction	ROI and NI	ROI only	NI only
Cost database	Costs for future planned developments included using a 5 year horizon. Once the asset is classified as built, it remains in the cost file for 7 years	Costs for every asset in the current network included. No future looking component included. Also, lightly loaded lines (less than 20% of capacity utilised) are excluded from the cost file	n/a

Scenarios	4 different scenarios considered	Only 1 scenario considered (Winter Peak)	n/a
Dispatch	Dispatch is as per merit order plus dispatch assumptions in Figure 3.	Dispatch on all generators is “pro-rata”	n/a

Prior to submission of the Indicatives tariffs to the RAs, the TSOs analysed the Generators with the highest Indicative 2011/2012 tariffs in both NI and ROI in order to provide guidance to the RAs on the drivers behind the variability in the indicative tariffs. This is outlined below:

1. Enniskillen Wind (highest NI tariff)

The tariff for Enniskillen Wind is set during the Summer Minimum Demand scenario⁹, which has a dominant North to South flow.

Enniskillen Wind locational tariff equals €7.87931/kW/year, it is derived as follows:

- Total agent costs = €89,830
- Generator dispatch = 11.4MW
- Locational Tariff = €7.87931/kW/year

From analysis the main contributors to the tariff are the following:

- 2nd north – south interconnector and associated ROI circuit between Cavan and Woodland
- Uprated circuits between Enniskillen and Omagh.

The tariff currently applied to NI generators (2010/2011) has no locational element (it is purely postalised). The Indicative 2011/2012 tariffs for the northern Generators are set by the Summer Minimum scenario where the dominant flow is from North to South. In this case the northern Generators are using the new Cavan – Turleenan circuit, which has a high cost associated with it.

2. Trien (highest ROI applicable tariff)

The tariff for Trien is set during the Summer Peak 80% Wind scenario (which has a dominant South to North flow).

Trien’s locational tariff equals €5.4264/kW/year, it is derived as follows:

- Total agent costs = €204,550

⁹ Summer minimum demand, Merit order Dispatch and 80% Wind Generation.

- Generator dispatch = 37.7MW
- Tariff = €5.4264/kW/year

From analysis the main contributors to the tariff are:

- 220kV cable from Moneypoint to the new Kilpaddoge station in north Kerry;
- New 220/110kV station at Knockanure; and
- 2nd north – south interconnector and associated circuit between Cavan and Woodland.

The following North-South flows have been observed by the TSOs in the model used to calculate the Indicative tariffs.

Figure 2: North-South flows

	Winter Peak		Summer Peak 0% wind		Summer Peak 80% wind		Summer Minimum	
	MW	Direction	MW	Direction	MW	Direction	MW	Direction
Cavan - Turleenan	14.7	S-> N	66.4	S-> N	116.5	S-> N	31.2	N->S
Louth - Tangree	125	N->S	27.6	N->S	110	S-> N	34	N->S
Net flow	110.3	N->S	38.8	N->S	226.5	S-> N	65.2	N->S

The TSOs have used four load flow scenarios as follows:

- Winter Peak with zero wind generation assumed;
- Summer Peak with zero wind generation assumed;
- Summer Peak with generators dispatched at 80% of their installed capacity; and
- Summer Minimum with wind generators also dispatched at 80% of installed capacity.

These scenarios are considered to be appropriate and consistent with those scenarios giving rise to network investment planning.

The following Dispatch assumptions for Turlough Hill, Hydro, Wind Generators and the Moyle Interconnector have been made by the TSOs.

Figure 3: Load Flow Scenarios and Dispatch assumptions

	Winter Peak Low Wind	Summer Peak Low Wind	Summer Peak High Wind	Summer Minimum Wind	High
Turlough Hill	100% Gen	100% Gen	100% Gen	100% demand	Pump
Hydro	100% Gen	100% Gen	100% Gen	0% Gen	
Wind	0% Gen	0% Gen	80% Gen	80% Gen*	
Moyle	440MW import	410MW import	410MW import	205MW import	

*The wind generation in Summer Minimum was further scaled down in order to balance the dispatched generation with load to 68% of contracted capacity.

Assumed Transmission Network

A five year time horizon is utilised reflecting the network expected to be in place in the Summer or Winter depending on the scenario in question. The proposed indicative tariffs reflect the network expected to be in place during Winter Peak 2016/2017, Summer Peak 2017 and Summer Minimum 2017. The network files used are based on the ROI Transmission Forecast Statement document and the NI Transmission Seven Year Statement.

Further detail on the Generator TUoS tariff methodology is included SEM-11-037, which is published alongside this consultation document.

5 JUNE WORKSHOP & NEXT STEPS

The RAs and TSOs will also hold a workshop on the Generator tariffs and their method of calculation on Wednesday 22 June 2011 in the Crowne Plaza Hotel, Dundalk starting at 10:00 am.

The RAs and TSOs would also welcome questions on the indicative tariffs themselves, the process behind their calculation etc, from interested stakeholders to be submitted one week prior to the workshop (by close of business Wednesday 15 June). The RAs and TSOs believe that this will allow a more constructive and open Question and Answer session at the workshop, ultimately to the benefit of those in attendance.

To repeat the accompanying indicative Generator TUoS tariffs and Generator TUoS Methodology Statement are intended for consultation and subject to finalisation after the following:

- June 2011 Generator TUoS workshop;
- Review of responses received to this consultation process;
- SEMC decision on issues outlined in SEM-11-018; and
- CER and NIAUR decisions on allowed 2012 Transmission revenues.

Respondents to this SEM Committee consultation are requested to comment on (a) the indicative all-island Generator TUoS tariffs for the tariff year 1st October 2011 to 30th September 2012 and (b) the TUoS methodology statement, which details the steps taken by the TSOs in calculating these indicative tariffs (SEM-11-037).

Responses are to be submitted before 5pm on Friday 15 July 2011.

APPENDIX A: INDICATIVE ALL-ISLAND G-TUOS TARIFFS 2011/2012

Station	Contracted MEC (MW)	Final Tariff (€/kW/yr)
Ardnacrusha	7.5	4.9011
Ardnacrusha	21	4.9011
Ardnacrusha	22	4.9011
Ardnacrusha	19	4.9011
Ardnacrusha	24	4.9011
Aghada	258	4.7941
Aghada	90	4.7941
Aghada	90	4.7941
Aghada	90	4.7941
Arigna	10.4	4.1559
Arklow	25.2	4.3772
Athea	38	5.7849
Ballywater	42	4.2403
Booltiagh	31.5	5.4865
Ballylickey	36.45	4.1247
Cordal	35.8	4.9086
Coolegrean	18.5	4.9086
Glentanemacelligot	18	4.9086
Scartaglen	24	4.9086
Foiladaun	11.5	4.9086
Binbane	40.55	5.4851
Bellacorrick	6.45	4.3193
Boggeragh	57	5.3326
Boggeragh	23.95	5.3326
Boggeragh	20	5.3326
Corderry	23.45	4.1487
Clahane	37.8	5.9180
Castlebar	27.2	4.3866
Carrigadrohid	8	5.0499
Cathleen Falls	22.5	4.1005
Cathleen Falls	22.5	4.1005
Cliff	10	4.1005
Cliff	10	4.1005
Gortahile	21	4.0014
Cunghill	34.8	4.1920
Cushaling	121.5	4.6168
Cushaling	58	4.6166
Cushaling	58	4.6166
Coomagearlahy	42.5	5.8406
Coomagearlahy	38.5	5.8406
Castledockrill	41.4	4.2535

Station	Contracted MEC (MW)	Final Tariff (€/kW/yr)
Dromada	28.5	5.7849
Drybridge	17	4.0777
Dunmanway	28.89	4.1247
Derrybrien	59.5	4.6620
Derryiron	51.8	4.9709
Derryiron	51.8	4.9709
Loughaun	24	4.8265
Garvagh	31.5	4.1487
Garvagh	26.7	4.1487
Glanlee	15.8	5.8405
Glanlee	20	5.8405
Great Island	6	3.9825
Great Island	54	3.9825
Great Island	54	3.9825
Great Island	108	4.1802
Garrow	5	5.9296
Garrow	10	5.9296
Coomacheo	59.2	5.9298
Golagh	15	4.6579
Glanagow	445	4.7936
Glenlara	27	4.9012
Glenlara	26	4.9012
Hunt_ST	123	4.5979
Hunt_CT	229	4.5979
Huntstown	412	4.6297
Inniscarra	19	4.9350
Dublin Bay Power	415	4.5381
Reamore	29.3	5.7101
Reamore	15.3	5.7100
Reamore	12	5.7100
Knockeragh	9.35	5.7913
Knockacummer	87	4.9012
Lough Ree Power	94	4.4683
Longpoint	431	4.7943
Letterkenny	26.9	5.4969
Lisheen	55	4.5313
Lodgewood	14.4	4.2535
Lodgewood	5	4.2535
Lodgewood	14.8	4.2535
Meath	22.5	4.7546
Macroom	8.75	5.0572
Burren	24	5.0572
Moneypoint	287.5	5.3759
Moneypoint	287.5	5.3759
Moneypoint	287.5	5.3759
Marina	112	4.8054

Station	Contracted MEC (MW)	Final Tariff (€/kW/yr)
Moy	6	4.2682
Meentycat	52.86	5.3073
Meentycat	18.1	5.3073
Meentycat	14	5.3073
Mulreavy	82	4.1005
North Wall	45	4.5977
North Wall	118	4.5618
North Wall	109	4.5618
Oughtragh	9	5.7372
Glenree	6.9	4.2425
Glenree	27.2	4.2425
Glenree	28	4.2425
Pollaphuca	34	4.0014
Rathkeale	12.5	5.1294
Rathkeale/Grouse	15	5.1295
Ratrussan	48	3.9258
Mountain	30.6	3.9258
West Offaly Power	141	4.4632
Sorne Hill	31.5	5.4969
Sorne Hill	16.6	5.4969
Somerset	7.65	4.4611
Shellybanks/Poolbeg	150	4.5481
Shellybanks/Poolbeg	150	4.5464
Shellybanks/Poolbeg	160	4.5464
Seal Rock	65	5.1420
Seal Rock	65	5.1420
Tarbert	54	5.1011
Tarbert	54	5.1011
Tarbert	240.7	5.1011
Tarbert	240.7	5.1011
Tynagh	259	4.7701
Tynagh	145	4.7701
Turlough Hill	73	4.7152
Turlough Hill	73	4.7152
Turlough Hill	73	4.7152
Turlough Hill	73	4.7152
Tullabrack	12.6	5.2237
Tawnaghmore	52	4.2680
Tawnaghmore	52	4.2680
Trien	47.1	6.0629
Cauteen	37.9	4.7431
Cappagh	16.1	4.7431
Glenlough	33	4.7431
Tralee	41.9	5.7101
Tonroe	5.94	4.1748
Trillick	28.99	5.4969

Station	Contracted MEC (MW)	Final Tariff (€/kW/yr)
Wexford	38.9	4.1437
WIND_AGHY	67.5	7.1298
BAFDG4	180	5.6117
BAFDG5	180	5.6117
BAFDG6	180	5.6117
BAFDG7	58	5.7349
BAFDG8	58	5.7349
BAFD_GA	160	5.6117
BAFD_GB	160	5.6117
BAFD_GC	180	5.6117
BAFD_GD	100	5.7349
WIND_BAME	5	5.5410
WIND_CARN	13.8	5.1470
WIND_COLE	45	6.3051
COOLG8-	53	6.1236
COOLST-	170	6.1236
COOLGT-	260	6.0734
WIND_DUNG	15	5.4618
WIND_ENNK	16.9	7.2026
WIND_FALL	50	5.6766
WIND_KILL	22.5	6.1455
KILRG1-	260	5.5260
KILRG2-	260	5.5260
KILRG3	42	5.5260
KILRG4	42	5.5260
KPS_AUX1	29	5.5260
KPS_AUX2	29	5.5260
WIND_LARN	15	5.6893
WIND_LIMA	37.7	6.4962
WIND_LSMR	15	6.1243
WIND_MAKL	60.6	6.2329
WIND_MANT	24	5.9554
WIND_OMAG	95.7	6.2330
SKWF1-	27.6	6.1455
WIND_STRA	27.4	6.1618