Invitation for' PV in HOKKAIDO Contest " hosted by TEPCO and HEPCO, Best Models for Predicting Power Output of Solar Power Plants in Hokkaido " [T-contest-2]

Notebook:	Var Notes		
Created:	1/25/2019 2:49 AM	**Updated:**	2/16/2019 11:30 PM
Author:	mhd3ella@yahoo.com		
URL:	https://cuusoo.com/ideas/c772b75e107746639dc026f687fd4771/submitted		

To sum up the methodology: (Report)

Proposal 1: If the forecasts are rolling each 30mins and neither satellite nor sky imagers data are provided, then using persistence forecasts with some external information from other sources and PV plants in ensemble model (RF) could be the best option.

Note: *The lagging and leading weather forecasts of the target hour can be used as well. In addition, the rolling forecasts before 6PM can be included to get overlapped weather forecasts for the target hour instead single weather forecast.*

Course of Data Science for Environmental modelling and Renewables "In this part we will look at modelling time series. We will look at a more informal methods **called STL,**" Seasonal and trend decomposition using Loess (STL)

Proposal 2: *The weather-based models, models that forecast based on weather conditions (Decision Trees), as in Load forecast thesis by SIUC* "MULTISTEP FRAMEWORK FOR SHORT-TERM LOAD FORECASTING USING MACHINE LEARNING ALGORITHM". This framework utilizes decision trees for categorizing the data based on the weather conditions and then using simple and effective forecast models, such as ANN, SVM, etc.

I think this Proposal 2 is the best option, because all models suffer from biasing issue, and the remedy is always by trad-off in the data or in the cost function of the model, and those technique of imbalanced data could reduce the bias. But why not to try to use several models for each condition or by categorizing the training and testing data to different categories, I think this can reduce the bias further than using the imbalanced data techniques.

Proposal 3: As in GEFCom's top model, but here for deterministic forecast: "*A semi-empirical approach using gradient boosting and k-nearest neighbors regression for GEFCom2014 probabilistic solar power forecasting*". The diurnal cycle is handled by fitting separate models for each hour of the day with the positive solar radiation. A model for simulating PV power production, taking the effect of temperature into account, is also included. The forecasting methods were gradient boosting for the deterministic forecasting. By the way, this GEFCom model is an efficient post-processing method for bias reduction and location adaptation or spatio-temporal refining of the solar radiation forecasts from ECMWF model.

Proposal 4: Use another NWP data such as WRF besides the Japaneses NWP, to get ensemble NWP.

 Try LSTM, long short-term memory network (but they could be more useful in hour-ahead forecasts, not day ahead).

Proposal 5: The benefit of solar radiation measurements that are associated in the historical (training) data is used this data to calibrate or bias reducing by the post-processing adjusting approach of the solar radiation from NWP in the historical period. Then, using this post-processing approach will be implemented to adjust the solar radiation of NWP in the forecasting period (January 2018). I think of using this approach for adjusting solar radiation (GHI) from NWP or finding the predicted solar radiation on the plane of array (POA). **So, in this step for adjusting GHI to POA**, by using measured solar radiation as output for training the model and the POA solar radiation will be the output during the forecast period. While the inputs of the adjusting model may include several weather variables from NWP(s). Then, a statistical (ML) or physical model can be used to

convert the solar radiation (POA) to solar power (MW). This conversion step should adjust the spatial resolution between the locations of solar radiation measurements and PV systems.

Note: The detrending of solar radiation data can be done by using clear sky model or by using a model for for each hour (half hour) to deterend the diurnal variability, and low-pass filter to deterend the annual variability. After that, the trend is retrieved in the solar radiation and the statistical model can be used to convert the solar radiation to output PV solar power.

Note: While the solar data of GEFCom2014 are came with solar radiation at the surface of 2-m height and the top atmosphere height, they are both from NWP (ECMWF) for both historical and forecasting periods. So GEFCom didn't provide measurements for solar radiation, which makes it more challenging to correct or adjust the solar radiation from NWP.

Note: As we know, ensemble learners are based on the idea of combining weak learners to create strong learners. But, these learners provide superior result when the combined models are uncorrelated. Since, we have used 5 GBM models and got no accuracy improvement, suggests that the models are correlated. The problem with correlated models is, all the models provide same information.

NOTE (Post-processing Approach): I think the adjusting post-processing approach is good option. there is two stages for this approach. First, adjust the solar radiation by calibrating it with the solar radiation measurements to get adjusted POA solar. Second, use the adjusted solar radiation (POA) for solar power forecast at the location of the PV plants. Including both temperature and cloud cover data in both stages of this approach, it may be useful to incorporate information about surface albedo, aerosol optical depth (AOD), or snow fall in the Hokkaido location. I don't think the detrending of diurnal or annual variability might be necessary if the surface solar irradiance was provided as input to the forecast models!.

Associate the graph of the taxonomy of PV solar power forecasting methods for different spatio-temporal resolutions.

Don't forget to normalize the data, and **most importantly** the missing and the outliers should be checked out.

Don't forget to detrend the PV power by using clear sky model and then SAM NREL model to convert irradiance to power which will be used in the division of the PV measurement over it (i.e., PV power measurement / clear-sky modeled power).

Or just use the R function to stationarize the time-series as in Solar forecast in Glasgow online course.

Use spatio-temporal forecast, by forecast the all as one region output, might be more smooth and easier than using each PV system forecast and aggregating them together. Take care and gather similar PV systems with similar orientation (azimuth angle).

Regarding to qualification of the participants: **3. If the same Participant uses different methods, multiple entries are acceptable.**

* If an entry has not been accepted, the applicant can resubmit the entry with modifications (please review and revise the contents of the pre-proposal).

So, if I notified as illegible for the contest, I can use another entry (Edit with same participants) and put our PhD approach and the paper in Renewable Energy citation in the proposal of this contest. (*Although the post-processing approach is more effective for rolling hourly and intra-hourly forecasts of solar power ramp events, not for day-ahead forecasts of solar power, as the case in the contest which is for day-ahead forecasts of solar power.*)

Try also deep learning.

The practicality/expandability (reproducible model) of the model is important in this contest not only the accuracy of the model. In addition, if a prediction can be performed using as little less data as possible, the method will be favorably assessed for practicality.

Japan Meteorological Agency (For historical solar or any meteorological data for training):

http://www.jma.go.jp/jma/indexe.html

http://www.jma.go.jp/en/warn/304_table.html

Visit the following sites for overviews of the weather and seasonal features in Hokkaido.
https://www.jma-net.go.jp/sapporo/tenki/kikou/tokucho/main.html
https://www.data.jma.go.jp/gmd/cpd/longfcst/en/tourist/file/Hokkaido.html

NOTE about using / sharing the contest data: Participants are asked to consult the Contest Secretariat in advance if they are considering using the method constructed for this contest or any results for a university graduation thesis, master's thesis, doctoral dissertation or submission of a paper to an academic society or other such organization. Preparation of a manuscript without such permission is prohibited. Also, inclusion of any furnished data as-is in a manuscript is not allowed. Applicants and participants are asked to consent to these stipulations.

In the PV in HOKKAIDO Rules file: I didn't understand the below statement clearly...

If the forecasted values for the data to be predicted can be obtained by 6:00 pm on the previous day, the actual data on the targeted date can be used for prediction. (By the way, the measurements for the historical period only no measurement provided for forecast period).

I almost sure (believe) the purpose of measurement of solar and temperature is to model the simulating PV output power, as it was quoted in GEFCom Paper "*A model for simulating PV power production, taking the effect of temperature into account, is also included*".

So, what is the benefits of collecting the measurements of the solar radiation and temperature ?! I think the met measurements will be used to comparison, modeling or calibration between them and the weather forecasts of the same variables, i.e., the solar radiation and temperature.

- **The power output unit used in the prediction results is MW. Values are to be calculated to the first decimal place.**
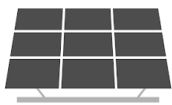
so the normalized PV power forecasts should be converted back to MW with 1 decimal place, *such as 406.8 MW*
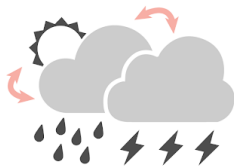
Points of prediction for large area
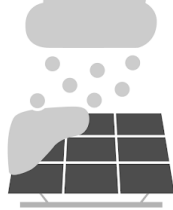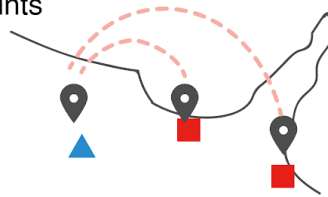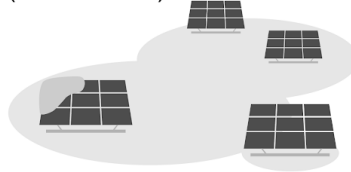
Solar radiation・Duration

Weather change

Differences between location of the solar power plants and location of meteorological data measurement points

Conversion efficiency

Snowfall / Snow cover

Influence of large-scale solar power plants location (distribution)

Other factors

I have registered by user name mhdella, email: mhdabuella@gmail.com, PW: a...4

https://cuusoo.com/profile

https://cuusoo.com/ideas/c772b75e107746639dc026f687fd4771/submitted

Thank you for your entry.

Receipt number: 475
Reception time: 2019-01-25 11:50:09 (GMT)

After confirming your entry information, we will notify you of your eligibility.

Please note that your entry will be declined if eligibility requirements are not met, or the entry information do not meet the purpose of contest.

(For more information, see entry guidelines)

Thank you very much for your participation.

Created a folder for the data of this contest as:

 C:\Users\Mhdella\Google Drive\Jupyter Folder\PV_Hokkaido_forecast_contest

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From: NineSigma Asia Pacific: TEPCO Contact Office

Sent: Friday, January 25, 2019 2:38 AM
To: mabuella@uncc.edu

Subject: Invitation for' PV in HOKKAIDO Contest " hosted by TEPCO and HEPCO, Best Models for Predicting Power Output of Solar Power Plants in Hokkaido " [T-contest-2]

Dear Dr. Abuella, M.

Let us call for participation to PV in HOKKAIDO Contest, Best Models for Predicting Power Output of Solar Power Plants in HOKKAIDO; the second largest island of Japan and northernmost prefecture , by Tokyo Electric Power Company Holdings (TEPCO) <http://www.tepco.co.jp/en/index-e.html> and Hokkaido Electric Power Co.,Inc (HEPCO). <http://www.hepco.co.jp/english/index.html>

TEPCO and HEPCO are endeavoring to expand the introduction of renewable & sustainable energy source, such as solar power. However, solar power is still fluctuating power source and its output depends on weather conditions. So TEPCO and HEPCO think precise output prediction methods are required for solar power to be reliable power sources.   TEPCO and HEPCO have developed their unique method to predict solar power output, but its accuracy can be degraded by local weather changes, recent climate changes, or impact due to snow/accumulated snow on panels.

TEPCO and HEPCO have therefore decided to jointly host a "PV in HOKKAIDO - Contest Seeks Best Models for Predicting Power Output of Solar Power Plants in Hokkaido, Japan", in order to discover innovative methods and new approaches to solar power generation prediction

We, NineSigma, help them to inviting relative research scientists / company to this contest, who are engaged in solar power forecasting .

According to your publication, "Forecasting of solar power ramp events: A post-processing approach", we believe you will be interested in this contest.

【Schedule of this contest】

-          Entry due date: February 8, 2019 (Fri).

-          Preparation of deliverable for 1st evaluation [predicted PV power output   (CSV) and explanatory material   (brief overview)] : February 12, 2019 (Tue) to March 15, 2019 (Fri)

・・・After entry, Contest Secretariat will send you reference data, information for prediction, such as data on actual power output in the past 2 years, Rating output, location of installation, azimuth angle, and punel-inclination angle, etc, and sample CSV for submission. By utilizing above data and additional information, please predict the sum of power output (MW) of solar power plants during target period for successive 30-minutes periods.

-          Notification of the 1st evaluation result: April 15, 2019 (Mon) to April 26, 2019 (Fri)

-          Preparation of deliverable for final selection [explanatory material   (with detail information) and presentation video]: May 7, 2019 (Tue) to May 24, 2019 (Fri)

-          Final selection: Early June, 2019 (TBD)

For the details, please take a look at the following contest portal site:

http://links.ninesigma.co.jp/c.p?02cDWb4htK

If interested in this contest, please register yourself to the contest on the above portal site and proceed to the prediction.

Application deadline: 8 Feb. 2019 (Fri)

Your participation is highly appreciated. Also we welcome the participation of students!

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TEPCO PV in HOKKAIDO Contact

NineSigma AsiaPacific, Inc.

TEL: +81-3-3219-2006

E-mail: PhD2@ninesigma.com

Web Page: http://www.ninesigma.co.jp/

The contest Description: http://links.ninesigma.co.jp/c.p?02cDWb4htK
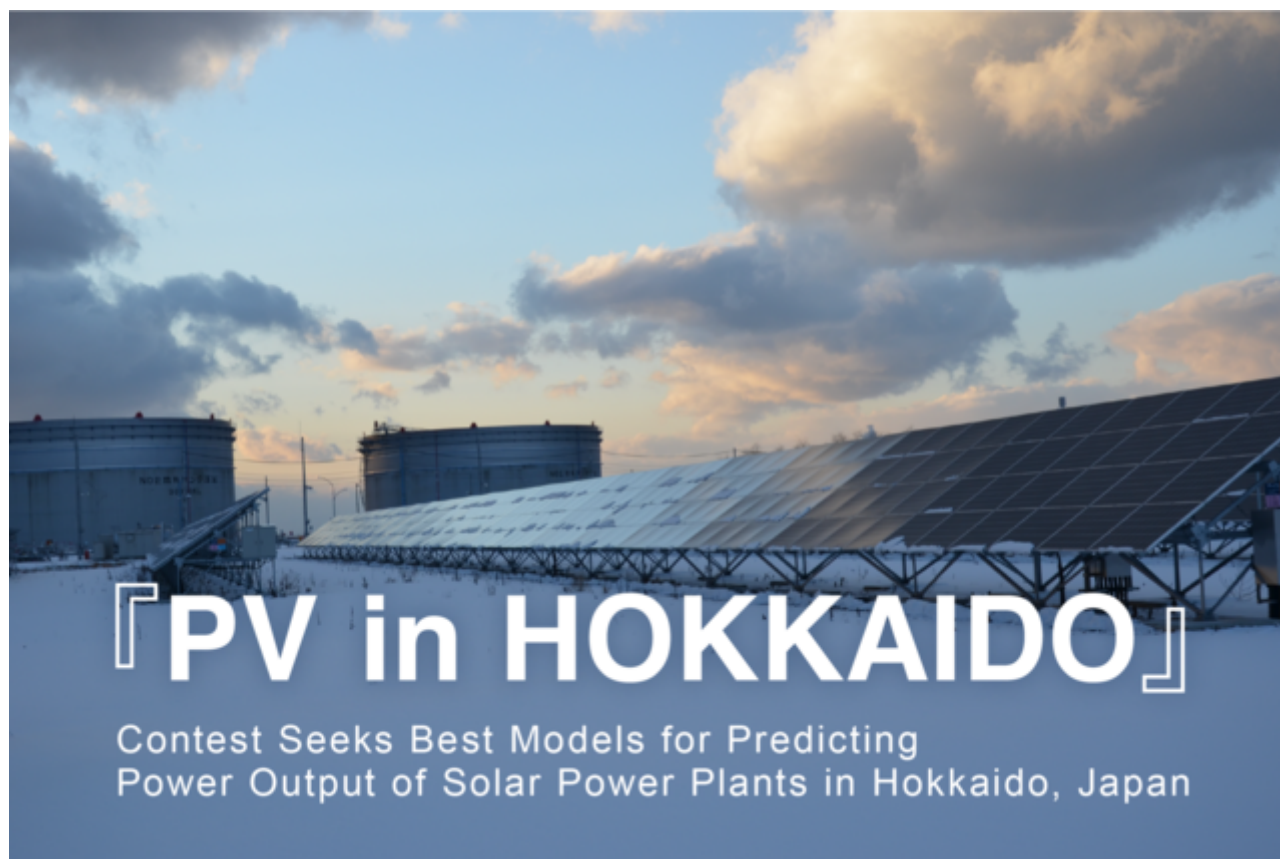
cuusoo.com

PV in HOKKAIDO

18-23 minutes

About this project

2018
太陽光発電量予測技術コンテスト
『PV in HOKKAIDO』
Contest Seeks Best Models for Predicting
Power Output of Solar Power Plants in Hokkaido, Japan

[Purpose of the Contest]
We, electric power suppliers, are now endeavoring to expand the introduction of renewable energy in the form of electric power of secured quality.
The representative renewable energy, solar power generation, is a fluctuating-type power source that depends on weather conditions. For this reason, the precise prediction of power output of solar power plants is critical to the effective use of solar power generation as a power supply source.

We have developed and introduced unique methods to predict power output of solar power plants based on weather data, and utilized them in our actual works. However, the prediction accuracy can be degraded by local weather changes, recent climatic changes, or impacts due to snow/accumulated snow on solar panels during the winter season. Further efforts are required to improve the prediction accuracy under these conditions.

Tokyo Electric Power Company Holdings (TEPCO) and Hokkaido Electric Power Company (HEPCO) have therefore decided to jointly host a "PV in HOKKAIDO - Contest Seeks Best Models for Predicting Power Output of Solar Power Plants in Hokkaido, Japan". The aim of the contest is to discover innovative methods and new approaches to solar power generation prediction by inviting contest Participants to submit technologies to predict power output of solar power plants in the Hokkaido area.

Contest Participants will be asked to predict the sum of power output from a set of specified solar power plants connected to power systems in the Hokkaido area. We, the Contest Hosts, will determine the winners by comprehensively considering the proposed prediction models, their practicality and expandability, and the accuracy of the predicted results.

We intend to apply the most excellent of the proposed methods from the contest in our actual operations with the aim of expanding the introduction of solar power generation and improving the stability of power supply by predicting power output of solar power plants more accurately.

概要　SUMMARY OF THE CONTEST

●Topic

Prediction of the total power output from specified solar power plants in the Hokkaido area.

●Available data (Participants can freely select the data)
・Historical data set for training (provided in advance by the Contest Hosts)
(1) Actual power output data from the past
(2) Rating output, locations, azimuth angle, and inclination angle

(3) Independently measured amount of global solar radiation and the measurement locations

・Other external data (Participants obtain the data on their own)

●Items to be submitted
(All Participants)
(1) Predicted power output of solar power plants

(2) Explanatory report describing the method (summary)

(Participants Selected for the Final Review)
(1) Explanatory report describing the method (details)

(2) Presentation video

●Selection review / Evaluation
(First Selection)
- Prediction accuracy (quantitative evaluation)
- Explanatory report describing the method (qualitative evaluation)
(Final selection)
- Contents of the First Selection
- Explanatory report describing the method (qualitative evaluation)

- Contents of presentation (qualitative evaluation)

●Prize/Prize money
□Grand Prize (1 team) Prize money: JPY 700,000

□Runner-up (1 team) Prize money: JPY 300,000

■Award for Accuracy (top 3 teams)

1st prize Prize money: JPY 500,000
2nd prize Prize money: JPY 400,000
3rd prize Prize money: JPY 300,000
■Award for Method (several teams)
Total prize money: JPY 600,000
■Special Award (several teams)

Total prize money: JPY 200,000

* The Judging Committee decides the Grand Prize, Runner-up, award for the method, and special award, based on a review.

* The award for accuracy is decided based on prediction errors during the entire period (RMSE).

募集要項 APPLICATION GUIDELINE

問題設定 Question Setting

[Question setting]

Utilizing the data provided by the Contest Hosts in advance or external data collected by each Participant, Participants are required to predict the sum of power output from solar power plants during the target period.

◆ Given

Participants are to propose method to predict power output of solar power plants of the following day (DAY:d) using his/her own selected data sets which can be obtained by 6:00 pm on the day before the targeted prediction day(DAY:d-1) .
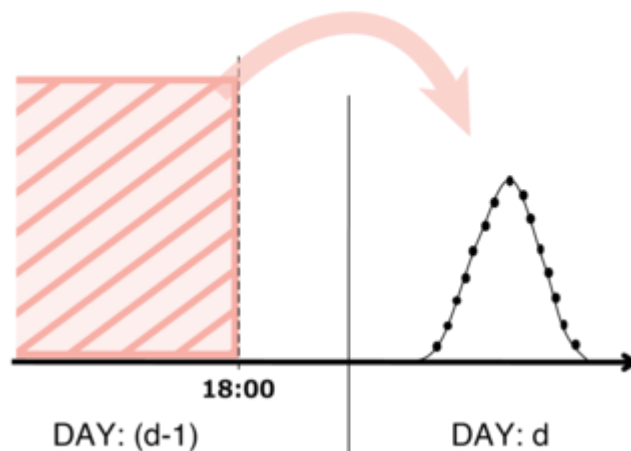
◆ The prediction targets
The prediction targets specified by the Contest Hosts are 15 solar power plants connected to power systems in the Hokkaido area (407.3 MW capacity in total).

The targeted solar power plants are selected on the basis of the relatively large scale of their operations and the periods they are to operate within the prediction target period.

■: Locations of Targeted Solar Power Plants (予測対象太陽光発電所)

拡大図

提出物　Items to be Submitted

[Items to be submitted]
(Participants)
(1) Predicted power output of solar power plants for the target term
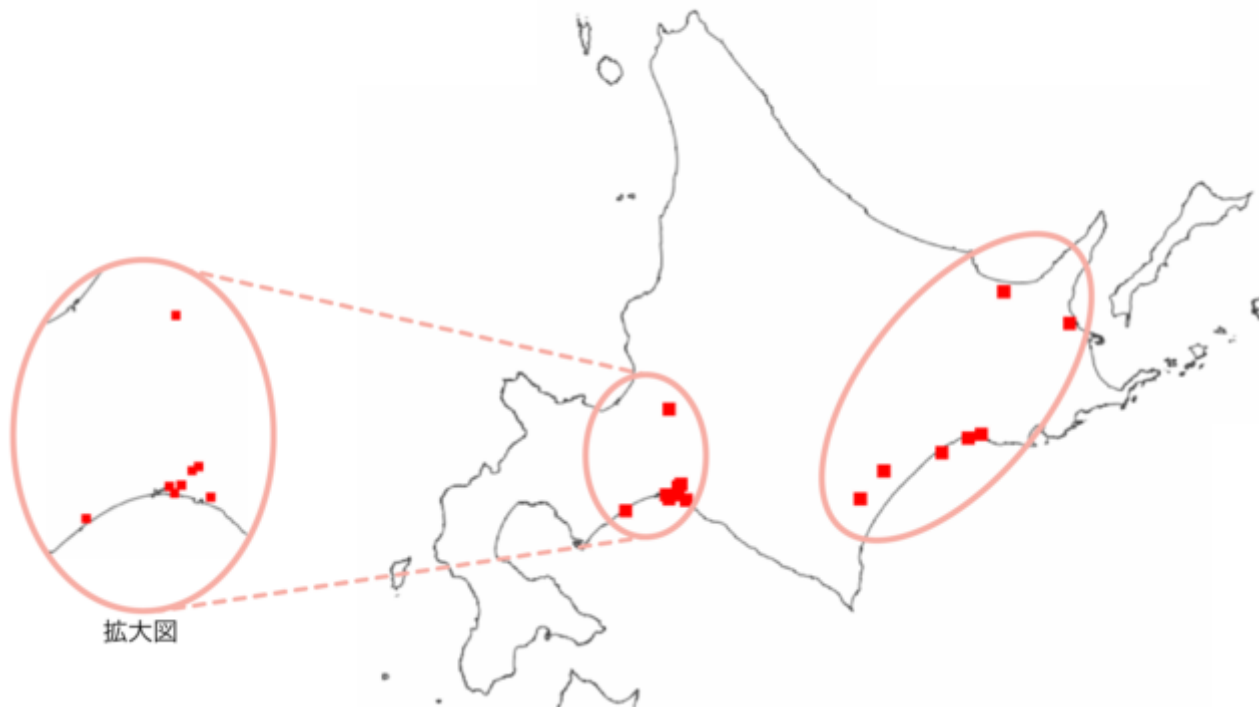Use the method proposed by the Participant to predict the sum of power output(MW)* of solar power plants during the target period (from 0:00 am, January 1, 2018 to 11:30 pm, January 31, 2019) for successive 30-minute periods. Submit the results in CSV file format specified by the Operations Secretariat. A sample CSV file will be sent to the Participant together with the information that can be used for prediction.

* The method should predict the sum of power output(MW) of specified solar power plants. Please note that the prediction target is not power output of individual solar power plants.

(2) Explanatory report describing the method (summary)

   Write a summary of the proposed prediction method, the data type to be used for the prediction, and any information and details in support of specially designed points, etc.

(Participants Selected for the Final Review)
(1) Explanatory report describing the method (details)
   Write out the details of the proposed prediction method and discuss what can be found from comparison between the prediction results and the correct answer data separately provided.
(2) Presentation video

   Create a video to describe the proposal and its advantages. The video is to be within 5 minutes. Please note that, because the review time is limited, the Contest Hosts will not review any portion of a presentation video running beyond 5 minutes.

(How to submit)

The Operations Secretariat will separately give the eligible Participants instructions on how to format and submit the various items to be submitted.

評価方法　Method of Evaluation

[Method of evaluation]
The submitted items will be evaluated in the following stages. For details, please check the link below. (The link below is a google document page. When you click, a new tab will open. If you cannot access the page, please change your browser setting or contact Contest Secretariat.)

→ See "Selection Criteria"

(First Selection)
(1) Accuracy of prediction (quantitative evaluation based on an evaluation index of prediction accuracy)

(2) Contents of the explanatory report describing the method (summary) (practicality/expandability of the prediction method)

(Final Selection)

The prediction accuracy and practicality/expandability of the prediction methods are comprehensively determined.

利用可能なデータ概要　Overview of Available Data

[Overview of available data]
　Participants freely select the data to be used for prediction. Please note that there are some the limitations applied to the external data that the Participants may obtain and use. For details, please check the link below. (The link below is a google document page. When you click, a new tab will open. If you cannot access the page, please change your browser setting or contact Contest Secretariat.)

→ See "Rules"

If a prediction can be performed using as little less data as possible, the method will be favorably assessed for practicality.

◆ Historical data set for training (provided in advance by the Contest Hosts)
(1) Data on actual power output in the past
(2) Rating output, locations of installation, azimuth angle, and panel-inclination angle

(3) Independently measured amount of global solar radiation, and the measurement locations

◆ External data

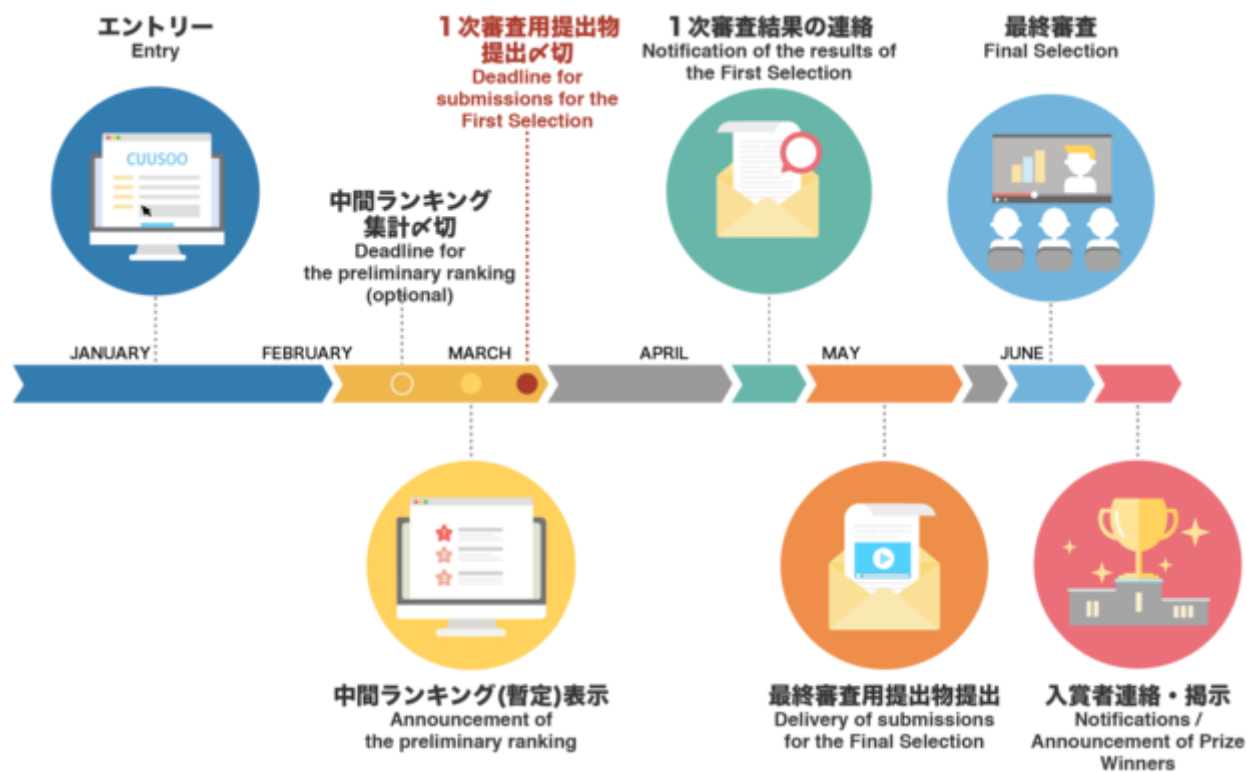Information freely obtained by the Participants

◆ Other

The Japan Meteorological Agency publishes the amount of global solar radiation at seven observatories in Hokkaido. Use them as reference together with the total solar radiation level provided as training data.
http://www.data.jma.go.jp/gmd/risk/obsdl/index.php#

スケジュール　Schedule

[Schedule]

Following are the dates scheduled for the Contest.

エントリー Entry	中間ランキング 集計〆切 Deadline for the preliminary ranking (optional)	1次審査用提出物 提出〆切 Deadline for submissions for the First Selection	1次審査結果の連絡 Notification of the results of the First Selection	最終審査 Final Selection

JANUARY · FEBRUARY · MARCH · APRIL · MAY · JUNE

中間ランキング(暫定)表示
Announcement of
the preliminary ranking

最終審査用提出物提出
Delivery of submissions
for the Final Selection

入賞者連絡・掲示
Notifications /
Announcement of Prize
Winners

Entry

   - December 20, 2018 (Thu) to February 8, 2019 (Fri)

Delivery of Submissions for the First Selection [Predicted PV power generation output + Explanatory report describing the method (summary)]

   - February 12, 2019 (Tue) to March 15, 2019 (Fri)

Deadline for the preliminary ranking

   - February 22, 2019 (Fri)

Announcement of the preliminary ranking (tentative)

   - March 1, 2019 (Fri) (subject to change)

Notification of the results of the First Selection (to Participants Selected for the Final Review)

   - April 15, 2019 (Mon) to April 26, 2019 (Fri)

Delivery of submissions for the Final Selection [Explanatory report describing the method (details) + Presentation video]

   - May 7, 2019 (Tue) to May 24, 2019 (Fri)

Final Selection

   - Early June, 2019 (planned)

Notifications/Announcement of Prize Winners

   - Late June, 2019 (planned)

各賞　Each Prize/Award

[Each prize / award]

Prize Winners for each of the following prizes are chosen from among the Participants Selected for the Final Review* and prize money is awarded.

◆ Grand Prize, Runner-up (one team each)
   Objective: Two teams judged by the Judging Committee to have submitted excellent prediction methods with excellent prediction accuracy

   Prize money: Grand Prize JPY 700,000, Runner-up JPY 300,000

◆ Award for Accuracy (1st to 3rd prize)
   Objective: Top three teams in terms of prediction accuracy

   Prize money: 1st prize JPY 500,000, 2nd prize JPY 400,000, 3rd prize JPY 300,000

◆ Award for Method (several teams)
   Objective: Several teams judged by the Judging Committee to have submitted outstanding prediction methods in terms of practicality or expandability

   Prize money: A total amount of JPY 600,000 will be divided among the awarded teams

◆ Special Award
   Objective: Several teams judged by the Judging Committee to have performed outstandingly on any points other than the above

   Prize money: A total amount of JPY 200,000 will be divided among the awarded teams

* If none of the predictions meet certain criteria, the result for award may be "No Prize Winner."

審査結果及び賞金授与　Selection Results & Prize Money

[Selection results and prize money]

The results of the Final Selection will be published on the Contest Website and the websites of the Contest Hosts. The Contest Hosts will also notify to each Prize Winners separately and pay out the prize money.

参加資格　Qualification for Participation

[Qualification for participation]
The qualifications/conditions for participation in the Contest are shown below.
1. No age limits (if a minor applies, approval of a legal representative is necessary).
2. Participation as a group is also possible.
3. If the same Participant uses different methods, multiple entries are acceptable.
4. Participants should be TEPCO CUUSOO account members (Participants must agree with all provisions TEPCO CUUSOO user policy).
5. Participants must agree with all of the provisions of the "Participation Rules."

6. Employees in electricity-related companies can participate in the Contest, excluding employees who work at any of the companies of the Contest Hosts (TEPCO group and HEPCO group), etc.

参加方法・流れ　How to Participate/Flow

[How to participate/Flow]
＜Entry＞
1. Register a TEPCO CUUSOO member account (if not registered)
2. Understand the purpose and rules of the Contest
3. Receive (download) the study data (partial), fill in the entry form, submit a pre-proposal to the Contest Website, and agree to the Participation Rules
4. Notification of entry acceptance*

* A notification will be sent to the applicant within 7 business days of the submission of the pre-proposal. If the proposal is submitted from December 25, 2018 (Tue) to January 6, 2019 (Sun), the notification will be sent after January 7, 2019 (Mon).
   * If an entry has not been accepted, the applicant can resubmit the entry with modifications (please review and revise the contents of the pre-proposal).

5. The study data (complete version) are received (only by accepted Participants).

○ At pre-proposal, you will be asked
(1) Technique, Data and Reason (about 50 words)：The technique and data you plan to use and the reason for their usage

(2) Intention Plan (about 50 words)：Your thoughts on how you plan to tackle the specific conditions (Nature of the area, greater predictions, effects of snow and snow cover, etc.)

In considering pre-proposal, please see the following data samples.
   - sample1_P201601.csv：Sample data on actual power output in the past in the past (from January 1, 2016 to January 31, 2016)
   - sample2_QT201601.csv：Sample data of dependently measured amount of global solar radiation, and the measurement locations (from January 1, 2016 to January 31, 2016)

   → Download the data

(Google drive is used to share files. When you click the link, you will be directed to an external site. If you cannot access the page, please change your browser setting or contact Contest Secretariat.

＜When the entry is accepted＞
1. Consider a prediction method and perform prediction works based on the training data set (complete version).
2. If prediction results on power output are submitted within the submission period, you can check your tentative ranking and prediction accuracy on the Contest Website.
* You can submit the reviewed method as many times as you want before the submission deadline (the latest submission is used for evaluation. The preliminary ranking will be published only once).
* Only prediction results submitted within the preliminary ranking limit are included.
* The preliminary ranking is optional. This will not affect the First Selection.
3. Create a report on the predicted power output of solar power plants with an explanation of the method (summary)

4. Submit your prediction results and an explanatory report describing the method (summary) by the deadline

＜When you receive a notification for the Final Review＞
1. Receive the correct answer data (actual values) on power output of solar power plants during the target prediction period

2. Create/submit an explanatory report describing the method (details), including the details of the prediction method, a discussion on a comparison between the prediction results and the correct answer data, and a presentation video of up to 5 minutes in duration based on the report

＜ When you receive a notification that you have won a prize＞
1. Submit information to confirm your identity and bank account details for remittance of the prize money
2. Confirm/notify the receipt of the prize money

3. Discuss or make a contract for a proposal with the Contest Hosts (use of prediction methods, joint study, etc.) (relevant Participants only)

審査委員会　Judging Committee

[Judging Committee]

The Judging Committee to review and select the Contest Prize Winners will consist of employees of the Contest Hosts who have experience with the processes to predict power output or demand and supply operations in the Contest Host companies, in addition to the following external experts. (Final Selection)

(External judges: honorifics omitted)
◆ Chief Judge

- Hiroyuki Kita, Dr.Eng, Professor, Hokkaido University
  - Graduate School of Information Science and Technology Division of Systems Science and Informatics

  - Research areas; Electrical and electronic engineering / Power engineering / Power conversion / Electric machinery

◆ Judges
- Masaki Yagami, Dr.Eng, Professor, Hokkaido University of Science
  - Dept. of Electrical and Electronic Engineering Faculty of Engineering

  - Research areas; Electrical machinery engineering / Power engineering

- Ryoichi Hara, Ph.D, Associate Professor, Hokkaido University
  - Graduate School of Information Science and Technology Division of Systems Science and Informatics

  - Research areas; Electrical and electronic engineering / Power engineering / Power conversion / Electric machinery

問い合わせ　Inquiries

[Inquiries]
To inquire about the Contest, please email the Operations Secretariat.
Depending on the content of your inquiry, the Contest Hosts may contact you directly to respond. Please understand in advance.
Inquiries on the selection review will not be accepted.

Responses to inquiries emailed from December 25, 2018 (Tue) to January 6, 2019 (Sun) will be sent after January 7, 2019 (Mon).

Contact: contest@lib-ag.co.jp

(Operations Secretariat: CUUSOO SYSTEM co., ltd. / TEPCO Town Planning Co.,Ltd. / LiB Co.LTD)

運営組織　Operational Organization

[Operational organization]
＜Joint hosting＞
- Tokyo Electric Power Company Holdings, Inc.

- Hokkaido Electric Power Co., Inc.

＜Operations Secretariat＞

- CUUSOO SYSTEM co., ltd. / TEPCO Town Planning Co.,Ltd. / LiB Co.LTD

＜Backup＞

Technical Committee on Frontier Technology and Engineering, The Institute of Electrical Engineers of JAPAN

[Special Instructions]
●When submitting an application for entry, all applicants will be asked to accept Participation Rules on the Entry Form.

(The link is a google document page. When you click, a new tab will open. If you cannot access the page, please change your browser setting or contact Contest Secretariat.)

● Use of any furnished training data shall be limited to contest applications. The training data shall not be provided to non-applicants and its use is strictly prohibited for unauthorized activities. In addition, once the contest period ends, all furnished data shall be deleted or destroyed.

●Participants are asked to consult the Contest Secretariat in advance if they are considering using the method constructed for this contest or any results for a university graduation thesis, master's thesis, doctoral dissertation or submission of a paper to an academic society or other such organization. Preparation of a manuscript without such permission is prohibited. Also, inclusion of any furnished data as-is in a manuscript is not allowed. Applicants and participants are asked to consent to these stipulations.

●Please note that the organizers, people that the organizers deem necessary for judging, people that the organizers deems necessary for considering, and the secretariat shall view and judge the submissions. There are the possibilities that submissions will be seen by members from Contest Hosts' group companies in order to consider the further utilization possibility on business. In such case, information will be handled properly.

●To obtain the right to win prizes in this Contest, Participants are required to hold talks with the Contest Hosts (use of prediction methods, joint study, etc.)

When you propose your ideas, TEPCO CUUSOO account is needed.

* Please be aware of the submission deadline.

You can receive information on challenges related to your interest if you register and set your interest information.

Please come and join us!

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on January 30 2019

(**Receipt number:475**)【PV in HOKKAIDO】Eligibility Result : accepted

From: noreply-notification@cuusoo.com

To: mhdabuella@gmail.com

Dear nhdella

Thank you for your entry.

Your entry has been accepted and you are an official participant in this contest.

●Receipt number
The number shown on the entry confirmation mail will be used throughout this contest, such as submission or inquiries.
Receipt number: 475

※ You will be given one receipt number for one entry. If you apply for multiple entries, make sure you note all corresponding numbers,

●Contest Mypage
Participants can check the latest contest process at "ENTERED CONTEST" which can be found on TEPCO CUUSOO top page after log in. The preliminary ranking also will be shown on this page.

＜NEXT STEP＞
Data will be sent out by e-mail from Contest Secretariat. It is important that you receive this data so please make sure your mail system is able to receive messages from the Secretariat.
contest@lib-ag.co.jp
If you do not receive any mails from the Secretariat within 3 business days from receipt of this Eligibility Result message, please contact tepco.cuusoo@cuusoo.com .

TEPCO CUUSOO
If you do not have any idea to this email, If you have any questions, please contact to CUUSOO Support
(tepco.cuusoo@cuusoo.com) by E-mal.

CUUSOO SYSTEM CO., LTD.
https://cuusoo.com

Dear participants,

Thank you for your participation. This is Contest Secretariat.

Contest Secretariat is now open for submissions until March 15th.

●How to submit

Participants are to email their submissions to Contest Secretariat

(contest@lib-ag.co.jp) before the deadline. You can revise and resubmit as

many times as you wish before the submission deadline (the latest submission

is used for evaluation.)

Subject of the mail must be "XXX※1 Submission for PV in HOKKAIDO". Please

write "Receipt number", "Your name", and "Total number of your

submission" in your mail contents. Please attach either [1] or [1]+[2].

[1] Predicted power output of solar power plants for the target term

CSV file title must be "XXX※1_XX※2_predict.csv".

※1　"XXX" should be the Receipt number which you have been given when

you entered the contest.

※2　"XX" should be the total number of your submissions. For example, if

you are submitting for the first time, it should be "01". For the second

time, it should be "02". Make sure this number is updated at every

submission,

for the number is important for managing the latest CSV file.

This can be submitted individually.

[2] Explanatory report describing the method (summary)

Please submit by the deadline. Though there are no regulation on the style

of this report, the file format must be in PDF, powerpoint, or word. (Please

keep the submitting file size to 3MB or less.)

In addition, please send this report with [1] Predicted power output of

solar power plants for the target term even if you have already submitted

it.

(At First Selection, we will evaluate [1] Predicted power output of solar

power plants for the target term.)

※ When Contest Secretariat receives these items, "Receipt Confirmation

Mail" will be sent. Since it may take a couple of days to send the

"Receipt Confirmation Mail",

participants who wish to receive confirmation before the deadline are

recommended to submit early.

※ If you do not receive any mails from the Secretariat within 4 days from

your submission, please contact tepco.cuusoo@cuusoo.com.

●The preliminary ranking

During the submission period, "The preliminary ranking" will be published

only once. If prediction results on power generation output are submitted by

February 22nd, you can check your tentative ranking and prediction accuracy

on "ENTERED CONTEST" page.

Please make use of this opportunity to check your ranking and accuracy.

※ The preliminary ranking is optional. This will not affect the First

Selection in any way.

※ You can submit your revised method as many times as you wish before the

submission deadline (the latest submission is selected).

For more information, please see <When the entry is accepted> on Application

Guidelines.

●Please confirm your "Nickname /Team name" on submitting for The

preliminary ranking The preliminary ranking will be shown only to

participants on "ENTERED CONTEST" page.

 On the list, "Nickname /Team name" which you specified in your entry form

will appear. If you do not wish to have your personal information

disclosed, please let us know your new "Nickname /Team name" by February

22nd.

＜NEXT STEP＞

Please submit your submission items by March 15th 23:59(JST).

Participants can check the current contest process at "ENTERED CONTEST"

which can be found on TEPCO CUUSOO top page after log in.

Thank you for your participation.

Photovoltaic Power Generation Executive Committee.

contest@lib-ag.co.jp

https://cuusoo.com/projects/50369