

# **IEEE FELLOW COMMITTEE**

## **Recommendation Guide**

### **“S/TC-FEC Evaluators and IEEE Judges” (September 2017)**

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# IEEE FELLOW COMMITTEE RECOMMENDATION GUIDE

## S/TC EVALUATORS AND IEEE JUDGES

(Approved: 09/2017)

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## 1. Introduction

This IEEE Fellow Committee (IEEE FC) Recommendation Guide specifies recommendations and guidelines for S/TC Evaluators and IEEE Judges. This Recommendation Guide is consistent with higher precedence governing documents (IEEE Fellow Committee Operations Manual, Forms, and Handbooks) and its goal is to guide prospective S/TC Evaluators and IEEE Judges in how to perform effective evaluations of Fellow Nominees and how to achieve consistency.

This Recommendation Guide contains best practices and there are no normative requirements. In case of any discrepancy, the IEEE Fellow Committee Operations Manual, Forms, and Handbooks take precedence.

Amendments to IEEE Fellow Committee Recommendation Guides shall require the approval of the Fellow Strategic Planning Subcommittee and the IEEE Fellow Committee Chair.

## 2. A Single Guide for Evaluators and Judges

This guide combines best practices for both S/TC Evaluators and IEEE Judges. The primary reason for this choice is that there are more similarities than differences in how Evaluators and Judges should assess Nominee's accomplishments and their impact. The best way to confirm this is to issue a common Guide where it is clearly argued that, for the *technical* evaluation of Nominees' contributions, role, and impact both Evaluators and Judges must follow the same principles and assessment methodologies specified in the Fellow Operations Manual.

This guide goes beyond providing best practices for evaluating the technical accomplishments of Nominees; it also provides the foundation for effective communication between Evaluators and Judges. More specifically, we give clear guidelines to Evaluators for understanding what makes the information provided to Judges through the S/TC Evaluation Form more effective and convincing. We hope that this Guide will lead to a better understanding of the role of Evaluator and Judge, ultimately yielding more consistent technical assessments of Nominees.

Orientation sessions on the Fellow process are provided every year to S/TC-FEC Chairs and IEEE Judges by the IEEE FC Chair and Vice-Chair, and this Guide complements those orientation sessions. It is highly recommended that both the orientation material and this Guide be provided to all S/TC-FEC members.

## 3. The Fellow Evaluation Process

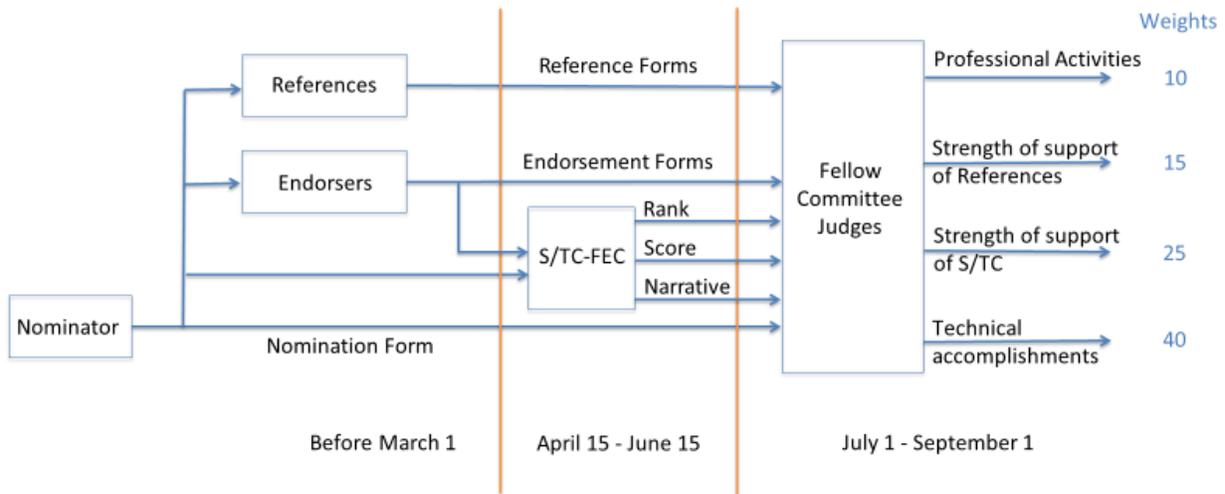
Figure 1 below shows an overview of the Fellow process.

The Nominator is the prime advocate for the Nominee and the Nomination Form is the fundamental basis of an evaluation. The Nomination Form provides information to four distinct audiences: References, Endorsers, S/TC Evaluators, and IEEE Judges.

These audiences have distinct roles in the overall process:

1. Endorsers
  - a. The Nominator chooses them to advocate for the Nominee.
  - b. They supplement the Nomination Form by providing additional confirmation and evidence of the Nominee's achievements and impact.
  - c. As specified in the Manual, Endorsement forms (if any) shall be forwarded to S/TC-FECs to aid them in their evaluation tasks.

2. References
  - a. The Nominator chooses them to advocate for the Nominee.
  - b. They convey the support of someone well-versed in the specific field of the Nominee.
  - c. As specified in the Manual, Reference forms shall not be shared with S/TC-FECs.
3. S/TC-FEC Evaluators
  - a. Provide an independent technical assessment on Nominees
  - b. Provide a more elaborate “big picture” of a Nominee’s impact for the IEEE Judges than what a Reference or Endorser might be expected to do.
  - c. Can also serve as advocates.
4. IEEE Judges
  - a. Experts across a wide range of disparate technical fields.
  - b. Provide a final ranking of all Nominees across various fields of interest.
  - c. Assess Nominees based on four rating categories, each with different weights:
    - Individual Contributions/Evidence of Technical Accomplishment (40/90)
    - Strength of S/TC Support (25/90)
    - Strength of Support from References (15/90)
    - IEEE and Non-IEEE Professional Activities (10/90)
  - d. Recommend to the IEEE Board of Directors a set of Nominees for Fellow elevation



**Figure 1: Overview of the Fellow process.**

As specified in the Manual, the S/TC-FEC evaluates Nominees using as input the Nomination and Endorsements (if any). An additional implicit “input” to the S/TC-FEC is the extensive knowledge of its Evaluators in the specific field of the Nominee.

The S/TC-FEC output is composed of three items:

1. A narrative on the Nominee’s contributions and impact
2. A numerical score 0-100 describing the Nominee’s degree of qualification
3. A list of Nominees ranked by numerical score

After the S/TC-FEC approves the completed Evaluation Forms, the Chair shall submit them “as is” to the IEEE Judges via the dedicated IEEE Web-Application.

It is very important to understand that the “Strength of S/TC Support” rating category used by IEEE Judges is different from the numerical score given in the “S/TC-FEC Evaluation” (see Item #2 in the S/TC-FEC output above). The “Strength of S/TC Support” numerical score is given by Judges on a 0-100 scale (with 100 being the strongest) based on all three outputs of the S/TC-FEC and most likely would be different from the numerical score given in the “S/TC-FEC Evaluation.” More details on the rating categories used by IEEE Judges can be found in §8.

#### **4. Evaluation principles and tasks**

As specified in Sect. 17.1 of the Manual, there are three fundamental evaluation principles that shall be followed by both S/TC Evaluators and IEEE Judges when evaluating Fellow Nominees:

- The contributions by practitioners in the application of engineering, science, and technology shall be accorded equal recognition with theoretical developments
- The Nominee must have made substantial individual technical contributions
- The impact of the Nominee must have already happened, and speculation on potential future impact is irrelevant

The principles above apply to all Nominees, regardless of their specific Nomination Category. On the other hand, the evidence to consider for the evaluation of Nominees’ contributions and impact strongly depends on the Nomination Category (see §5).

In addition to the above principles, the S/TC-FEC Evaluators shall base their evaluation only on the individual technical accomplishments of the Nominee, while the Nominee’s outside activities or service to the S/TC or IEEE shall not be considered. Only IEEE Judges will consider the Nominee’s outside activities and service to S/TCs and IEEE, as Judges have a specific rating category for this information (see §8.2.4).

As also specified in Sect. 17.1 of the Manual, the fundamental tasks that both S/TC Evaluators and IEEE Judges should perform are summarized below:

- Identify specific outstanding technical accomplishments
- Critically evaluate the innovation, creativity, importance, and degree of acceptance of the contribution(s)
- Critically assess the Nominee’s individual role in the contribution(s)
- Critically verify the evidence provided, doing your own due diligence based on your expertise and publicly available sources
- Critically assess the impact of the contribution(s) to the field of interest and society, and compare it to that of the other Nominees

#### **5. The determination of relevant evidence**

All Nomination Categories contain a mix of Nominees from various employment affiliation types (Industry, Academia, Government, and Other), and the information of a Nominee belonging to any of those four affiliation types is provided by the Nominator on the Nomination Form. For example, 75% of AE/P Nominees are from the industry while 15% are from

academia and 7% from the government; in the case of TL Nominees, 50% are from industry, 25% from academia, and 20% from the government.

Evaluators and Judges must determine what evidence is relevant using the exact same criteria. The criteria depend on the Nomination Category of the Nominee, and both Evaluators and Judges should be aware of this dependence when evaluating a Nominee. Therefore, Nominees in any of the four employment affiliation types but in the same Nomination Category, shall be evaluated using the same type of relevant evidence.

The considerations made in the following sections are not exhaustive. Evaluators and Judges must always exercise their own judgement.

### **5.1 Application Engineer/Practitioner (AE/P)**

AE/P is a category that was added in 2005 and focuses on applications of technology practice. This Nomination Category accounts for about 7% of all Nominees. The composition of AE/P Nominees in terms of employment affiliation types is approximately as follows: 75% are in industry, 14% in academia, 7% in the government, and 4% are other.

Application Engineers/Practitioners may make significant technical contributions in the design and/or evolution into manufacturing of products or systems, the use, operation, or application of such products or systems, and the advancement of industry practices and standards.

The evaluation focus is on the types of technical contributions mentioned above and Judges should find clear and convincing evidence that such contributions are the direct result of the Nominee's personal effort and that the contributions have had impact on industry, the profession or society at large. Key aspects to consider are innovativeness, originality, creativity, meeting market needs, regional as well as global impact on the profession or society at large, and advances in quality, reliability, cost effectiveness, and manufacturability.

Typical documentation is in the form of patents, contributions to industry practices and standards (IEEE or not), reports, and papers. Although a few impactful papers authored by the Nominee may be found, the quality and quantity of scholarly publications are not meaningful for this category and lack thereof must not penalize the Nominee.

### **5.2 Educator (EDU)**

This Nomination Category accounts for nearly 5% of all Nominees. The composition of EDU Nominees in terms of employment affiliation types is approximately as follows: 95% are in Academia, 3% in the Industry, 1% in the Government, and <1% are Other.

A Nominee in this category must have had an impact on engineering education. As an Educator, the Nominee's personal contributions can encompass the development of a new curriculum or courses that are innovative or unique. An accepted and widely used pioneering text is a significant useful contribution, as also published papers on engineering education matters. Publication of papers in the IEEE Transactions on Education or in other journals dedicated to engineering education and pedagogy constitute relevant evidence, but publications unrelated to the advancement of engineering education are to be considered of lesser importance. The contributions, again, are to be judged based on uniqueness, innovation, wide acceptance, etc. Another important aspect to consider is the degree of acceptance (local, national, international) of such innovations.

Note that it is not sufficient to have taught for many years or held an administrative role to qualify for Fellow elevation under this Nomination Category.

### **5.3 Research Engineer/Scientist (RE/S)**

This Nomination Category accounts for 77% of all Nominees. The composition of RE/S Nominees in terms of employment affiliation types is approximately as follows: 78% are in Academia, 15% are in the Industry, 5% in the Industry, 5% in Government, and 2% are Other.

For RE/S, sustained scholarly work is typically documented by significant (quality and quantity) scholarly contributions such as peer-reviewed publications, books, papers in technical reports, patents, or other publications.

The focus of the evaluation is on inventions, discoveries, or advances in the state of the art made by the Nominee, all of which must confirm innovation, creativity, impact, and a distinct personal role of the Nominee.

### **5.4 Technical Leader (TL)**

This Nomination Category accounts for 11% of all Nominees. The composition of TL Nominees in terms of employment affiliation types is approximately as follows: 53% are in the Industry, 25% are in Academia, 18% in the Government, and 4% are Other.

The individual contributions of TL Nominees can be exemplified through technical leadership of a managerial team or company-wide effort that led to an important benefit to society, technical innovation, the advancement of a device, idea or system leading to development, application and/or production. The technical innovation, risk involved, performance improvement, economic results, or other advantages must be above the norm. For TL Nominees, their leadership and role must be crucial for the successes of the cited accomplishments, and specific technical contributions by the Nominee which made the achievement possible must be present and supported by verifiable evidence. As is the case for the Practitioner category, quality and quantity of scholarly publications is not necessary for this Nomination Category, and lack of or having few publications must not penalize the Nominee.

The focus of the evaluation is on technical innovation and creativity involving ‘difficulties’ and ‘risks’ which were resolved through the leadership and role of the Nominee. A TL inspires and guides the team, contributing crucially to the success of the project. A TL is neither just a bureaucrat nor a manager, so organizational positions alone cannot be used as sole evidence of accomplishments. Thus, it is necessary to verify that the specific technical contributions of the Nominee made the achievements possible.

## **6. The Assessment of Contributions**

### **6.1 Scholarly publications**

When assessing a body of publications, it is important to look at: types of articles (e.g., tutorial or not), how many co-authors does the Nominee have, what is the impact on the literature, technology standards, or society at large, etc. Bear in mind that not all publications are the same. Tutorial/survey papers can sometimes be highly cited, but at best these document the Nominee’s maturity, especially if the paper is invited, and cannot serve alone as confirmation of impact of technical contributions. Thus, not all highly-cited publications should be treated

equally. Furthermore, papers included in conference proceedings are viewed in some technical communities as more impactful than their journal counterparts, and this difference may need to be considered by Evaluators and Judges.

Quality and impact of publications can be judged based on the technical knowledge of the valuator/Judge, as well as on bibliometric indices. For example, the number of citations, *h*-index, Field Weighted Citation Impact (FWCI), etc. can help in assessing the impact of a Nominee. Evaluators/Judges should use their own knowledge for interpreting these metrics, such as what is the “typical” citation count in a specific field. However, such metrics should not be used as the only indicator of scientific quality. Evaluators/Judges who consider bibliometric indices should be careful not to overemphasize their importance.

## 6.2 Products, Patents, and Standards

Impact of products can be measured in many ways: popular usage, mentions in companies’ press releases, level of innovation versus state of the art, revenue stream generation, or Endorsers’ statements.

If patents are used as evidence, then it is important to ascertain:

- Whether the patent is classified as Design or Utility patent (US patents only). Utility patents typically describe functional use either by Structure, Method, or a combined set of these type claims. Design Patents typically lack functional components.
- Which patent claims (independent or dependent) were contributed solely by the Nominee, in the case there is more than one inventor associated with a patent.

General questions to consider when assessing patents:

- Has the patent been sold or licensed to a third party for use? If yes, what revenues is it generating?
- Is the patent important for the assignee to remain on the cutting edge of the technology area being described? If yes, is it clear what competitive edge the patent describes?
- Has the patent initiated new business for the assignee? If yes, what is the new business venture and how is it benefitting the assignee and the society at large.
- Has the inventor published a refereed technical publication in addition to the patent? If yes, was that paper impactful in the community.
- Has the patent been often cited?
- Has the patent been deemed essential to products or standards?

Impact on standardization (IEEE or not) can be achieved in many ways: a technical leader who submitted influential contributions, led technical discussion, and drove the Working Group to consensus; a scientist that wrote an influential paper containing findings that were adopted in a popular standard; a practitioner whose forward-looking patents became essential to popular standards.

## 6.3 Peer Recognition

Peer recognition can help with the assessment of the impact of contributions. Peer recognition can take many forms: receiving awards (technical, best paper, company recognitions, etc.), invitations to deliver keynote at important conferences, receiving honorary degrees, publishing invited papers, etc.

## **6.4 The case of contributions made on proprietary or classified technologies**

Some Nominees have spent their career in the labs of defense contractors working on classified projects, or for companies which have preferred keeping their technologies as trade secrets and thus have forbidden publishing or patenting them. It is certainly true that for those Fellow Nominees whose careers have not enabled many of their contributions to be published in the open literature or made available publicly via some other means, it can be a difficult task not only to find sufficient Fellows to write References, but also to find sufficient evidence to document their impact to the field. In these cases, Endorsements can be very helpful as they allow providing additional evidence of technical impact, see §6.5 for more details.

Unfortunately, there are some cases when evidence of contributions and their impact cannot be provided or is insufficient. In these cases, it will be extremely difficult to make a case for elevating the Nominee, since the Fellow recognition depends critically on evidence of contribution and impact. This should not be viewed as a shortcoming of the Fellow process; this should actually be considered as a consequence of the Nominee's career choices. Other awards or forms of recognition would be more appropriate in these situations.

## **6.5 The important role of Endorsements**

Endorsements are very important and should not be considered as a form of "lightweight" References meant to influence the S/TC-FEC. Endorsements supplement the Nomination Form, as they are meant to provide additional confirmation and evidence of the Nominee's achievements and impact. Specifically, Endorsements can shed light on contributions that may be proprietary or not available for citation in the literature. Thus, Endorsements provide additional evidence for a Nominee's technical contributions or professional activities

Endorsements can be very helpful to those nominated in the AE/P and TL categories as they allow creating additional evidence of technical impact. They can also be very useful to support RE/S category Nominations when the Nominee performed proprietary or classified work for which there is little availability of public evidence. Endorsements are most effective when from company officers, government program directors, Standardization Development Organization officers, or colleagues who can attest and verify the Nominator's claims on impact and individual role of Nominee.

Note that the above considerations apply to Nominees from any employment affiliation type since, as shown in §5, also Academic and Government Nominees are substantially present in the AE/P and TL categories.

## **7. Recommendations to S/TC Evaluators**

Evaluators provide a technical evaluation of the Nominee's contribution and can influence the Judge's scoring through their S/TC Evaluation Form. Evaluators need to keep in mind that their technical evaluation of the Nominee's contributions, role, and impact must follow the principles and assessment methodologies given in §4-§6 which are followed also by the IEEE Judges. Additionally, S/TC Evaluators should also consider that:

1. They must provide a technical assessment only, and disregard any service the Nominee may have provided to the S/TC or the Technical Activities Board or IEEE as a whole.

2. Nominees active as volunteers in the S/TC or Nominees active elsewhere or not active at all in IEEE shall all be treated in the same manner, and only their technical contributions be taken into consideration.
3. As specified in the S/TC-FEC Handbook (see clause §5), the S/TC-FEC shall have no contact whatsoever with any other S/TC committee, e.g., Fellow Search/Nomination Committee, Technical Committees, etc.

The fundamental goal of an Evaluators is to help Judges make informed decisions about the degree of qualification of a Nominee. This is accomplished by providing a well-prepared S/TC Evaluation Form, which can have a substantial impact on the first two rating categories used by Judges (see §8.2.1 and §8.2.2) while it typically has no effect on the remaining two.

The case made by the S/TC-FEC to justify why the Nominee has been given that specific rank obviously directly affects the score a Judge assigns to the “Strength of S/TC Support” rating category. The specific technical expertise of Evaluators can also impact the score a Judge assigns to the “Individual Contributions/Evidence of Technical Accomplishment” rating category, especially when an IEEE Judge is not an expert in the field of the Nominee. Judges will use References as an independent (from Nominators and S/TC-FECs) technical assessment of the impact of the Nominee’s contributions and these may also influence the Judge’s score for the “Individual Contributions/Evidence of Technical Accomplishment” rating category. Since Evaluators do not see the References, their input provides no influence on the “Strength of Support from References” category. Also, since Evaluators must limit their assessment to technical considerations only, and thus ignore service to S/TCs or IEEE, their input provides no influence on the Professional Activities category.

The best way for Evaluators to advocate for (or against) a Nominee in their S/TC and thus influence Judges is to make a compelling case on why the Nominee is ranked high or low (see also the next Section). Thus, in preparing the S/TC Form, Evaluators should consider the following important “DOs” and “DON’Ts.”

Very important DOs:

- Use the narrative portions of the form to justify your ranking and score.
- Provide consistency between your score, ranking, and narrative and base your assessment on the evidence provided in the Nomination and Endorsements Forms.
- Use the word-limit allowed for your narrative answers to provide meaningful original viewpoints and background. This is particularly important if the Nomination does not clearly articulate the importance of the contribution in the broader scope.
- Describe whether and why the work is important and whether/how it has been impactful, verifying the Nominees’ personal role in it.
- Keep in mind that the Fellow elevation process is a competitive one and qualified Nominees may not get elevated in a given year because all the available elevation slots<sup>1</sup> were taken by other more qualified Nominees. Since Judges rank Nominees across tens of S/TCs, Evaluators in all S/TCs should strive to provide Judges with clear and effective S/TC Evaluation Forms so that the merits of a Nominees in one S/TC are

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<sup>1</sup> The IEEE Bylaws limit the number of Nominees that can be elevated every year to the 0.1% of the voting IEEE membership.

understood clearly and can be well contrasted to the merits of Nominees in another S/TC.

Critical DON'Ts:

- Do not respond too briefly or duplicate text from the Nomination and Endorsement Forms
- Do not use citation counts as the only evidence of value or impact
- Do not use the mere existence of a large body of work as evidence of impact. Prolificness is not always synonymous with impact.

## 7.1 How to facilitate the comparison of Nominees across S/TCs

S/TCs vary in member size, member employment affiliation, culture, and number of Nominations received. Consequently, S/TC-FECs do not score Nominees uniformly. IEEE Judges must reconcile the different scoring methodologies of different S/TCs and, thus, are faced with the problem of having to compare and rank Nominees rated with the same S/TC-FEC numerical score but evaluated by different S/TC-FECs.

To help harmonize scores across S/TCs, IEEE Judges are provided with a graphical representation of S/TC scores vis-à-vis the aggregate score of all Nominees in all S/TCs. These graphs can help uncover disparate scoring practices among S/TC-FECs, and can also help S/TC-FECs to convey additional information to IEEE Judges.

Examples of graphs can be found in Figure 2. Note that in these S/TC graphs:

- The vertical axis shows the Nominee's score as in the S/TC Evaluation Form.
- The horizontal axis shows the Nominees sorted in descending score order.
- The black curve shows the S/TC specific score curve, where each black circle denotes a Nominee.
- The red curve shows the aggregate scoring of all Nominees across all S/TCs.

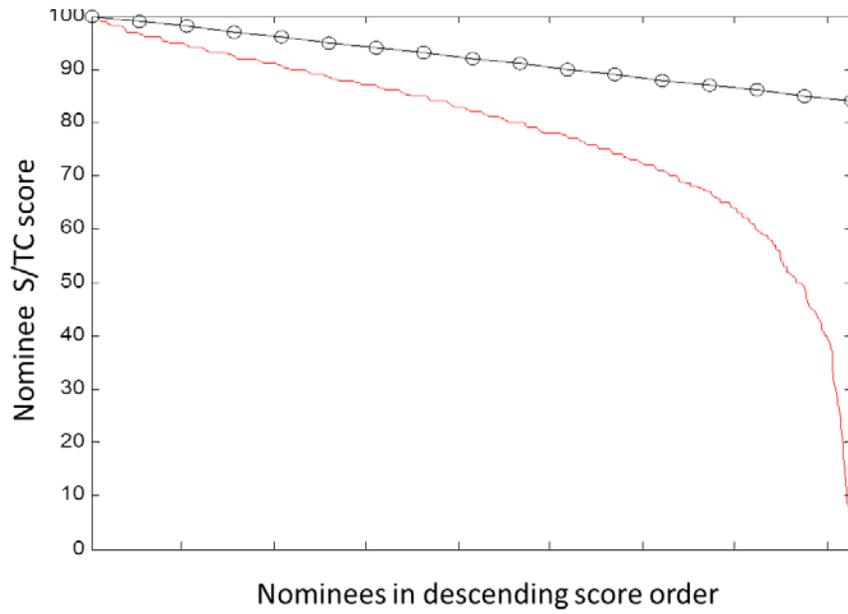
Figure 2.(a) suggests that the S/TC has scored all its Nominees generously as they all have been scored above 80. Also, the scores assigned to each Nominee are equally spaced. On the other hand, when lumping together all Nominees (the red curve) we can see that their scores take up the whole range. Faced with the scoring of this S/TC, Judges will likely assume that the S/TC-FEC has not evaluated its Nominees very thoughtfully. This will limit the influence of the FEC on the Judges' reviews and, in particular, on the Judges' scoring of the "Strength of S/TC Support" for this S/TC's Nominees will likely deviate substantially from the FEC scores and rankings.

Figure 2.(b) suggests that this S/TC has divided the Nominees in three qualification sets: qualified, borderline, not-qualified. This was accomplished by inserting gaps in the scores given to Nominees. At first glance, this S/TC-FEC appears to have performed its evaluations more thoughtfully and Judges may be more inclined to value highly the FEC input.

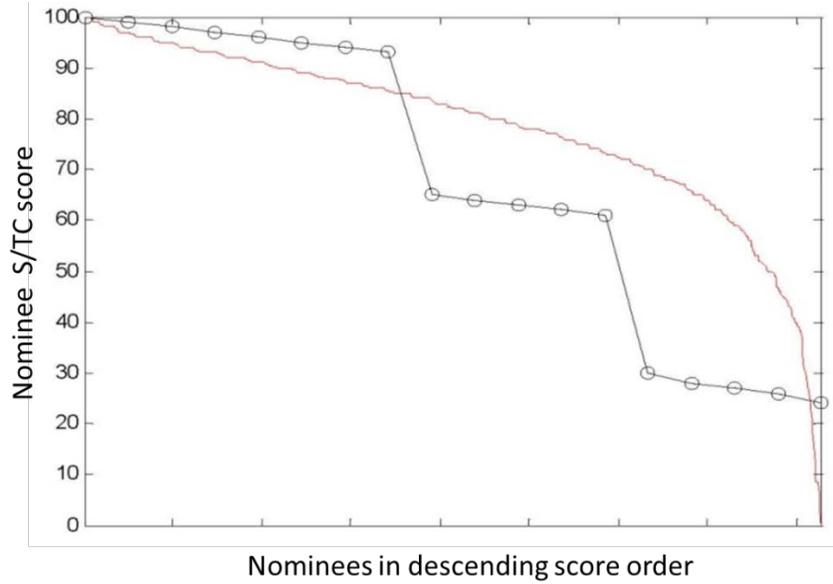
Although all three components of the S/TC Evaluation Form are valuable, the absolute score provided by the S/TC-FEC may sometimes convey little information to an IEEE Judge because of the differences in scoring practices across S/TCs and of how scores are currently used by S/TC-FECs (relative, not absolute, degree of qualification).

Therefore, it is recommended that S/TC-FECs first rank Nominees and then assign numerical scores keeping in mind that additional information can be conveyed to IEEE Judges by adopting

a scoring methodology that introduces gaps to separate Nominees with different degrees of qualification (score bunching) – as shown in Figure 2.(b).



(a)



(b)

**Figure 2: Comparison between the scoring of Nominees by two S/TC-FECs. Scores are shown for the specific S/TC-FEC (black) and across the whole population of Nominees (red).**

## **7.2 How to provide IEEE Judges with Effective Evaluation Forms**

The S/TC-FEC output is read by IEEE Judges who use it to assign a “Strength of S/TC Support” score to each Nominee. Each Nominee is evaluated by at least four Judges, and it is highly likely that some of them will not be experts in the specific technical field of the Nominee. IEEE Judges use the narrative answers in the S/TC-FEC Evaluation Form to create a broader understanding of Nominee’s technical contributions and impact. Thus, the S/TC-FEC Evaluation Form can also indirectly influence an IEEE Judge’s Individual Contributions/Evidence of Technical Accomplishment score, which carries the highest weight.

IEEE Judges need from Evaluators an independent (from Nominator and References) assessment and verification of the cited contributions and their importance, the specific role of the Nominee, and the current (not potential) impact of those contributions to society. Basically, Evaluators are being asked for their informed and critical opinion on how qualified (or not) each Nominee is for elevation to Fellow grade, and not to translate or repeat the opinion of Nominators and Endorsers.

A well-prepared S/TC-FEC Evaluation Form will help IEEE Judges better understand the rationale for the Nominee’s score and ranking, allowing an easier comparative assessment across S/TCs. Here are recommendations for maximizing the usefulness of Evaluation Forms to IEEE Judges:

1. State how qualified or not yet qualified the Nominee is (and why), and convey a judgment about the strengths and weaknesses of the Nominee’s qualifications. Make a good and well-documented case and argue why the Nominee has been placed in that rank, because Judges must reflect in their scoring how convincing and well-made the S/TC case is.
2. Evaluation Form entries should provide a critical analysis of the information contained in the Nomination Form and a clear explanation for the rationale behind the assigned rank and score.
3. Give an independent evaluation of the Nominee, and do not duplicate or cut/paste from the Nomination or Endorsement forms.
4. Include specifics in your responses, and focus on accomplishments that are clearly at or above Fellow level.
5. Don’t be overly succinct but give thoughtful narrative responses with the goal of educating Judges on the importance and impact of the Nominee’s contributions.
6. Focus on available and verifiable evidence, and if new evidence has surfaced during your due diligence then state that explicitly in the Evaluation Form.
7. The comments made on the Evaluation Form must be consistent with the numeric score given by the S/TC to the Nominee.
8. If Endorsements were useful in providing additional evidence, say so.
9. In evaluating Nominees, consider how they compare relative to other recently appointed Fellows in your S/TC – but do not mention names.
10. While the score given to a Nominee often provides little information to an IEEE Judge, use score bunching to inform a Judge about noticeable differences in the degree of qualification of Nominees closely ranked.

## **8. Recommendations to IEEE Judges**

### **8.1 Recommendations to the Expedited Evaluation (EE) Judges**

The Expedited Evaluation Procedure (EEP) is specified in §6 of the Fellow Committee Handbook and should be ready for use within one or two years, once the IEEE Web Scoring application has been updated. According to the EEP, two EE Judges will perform an expedited evaluation of Nominees ranked at the top/bottom of the S/TC rankings (only for S/TCs that evaluated at least 10 Nominees) while regular IEEE Judges shall perform the usual full evaluations following the guidelines in §8.2.

The goal of EE Judges is to confirm whether a Nominee should immediately be recommended for elevation or removed from further consideration. If the two EE Judges agree, then the Nominee is immediately placed on the Pass or Fail list. If the two EE Judges disagree, then the Nominee's Nomination package is sent to a Judging Group to undergo the usual full evaluation.

The method of using two EE Judges is reminiscent of the "four eyes" policy adopted in many Journals for the immediate rejection of low quality papers. Here, however, the process operates in both high-quality and lower-quality regions. The role of EE Judges is to confirm a high or low rank from the S/TC.

The goal of the EE Judge is to quickly understand whether there is anything in the Nomination package of a Nominee that would suggest performing a full evaluation to re-assess the degree of qualification of the Nominee. Simply having concerns on whether the Nominee really has a very high (low) degree of qualification to be placed at the top (bottom) of an S/TC ranking would be sufficient for the EE Judge to recommend a full evaluation.

Concerns can be raised for a variety of reasons. For example:

- The degree of qualification of the Nominee as quickly assessed by the EE judge is not consistent with the Nominee having been given such a low/high ranking by the S/TC.
- The Nomination does not really make a good case for elevation so that an in-depth full evaluation would be more appropriate.
- The Nomination Category chosen by the Nominator or suggested by the S/TC is not appropriate.
- The S/TC Evaluation Form is not well written, or does not explain well why the Nominee is low/high ranking, or the Form contains inconsistencies (e.g., the narrative is not consistent with the ranking).
- At least one Reference raises concerns on the Nominee's degree of qualification (note that S/TC-FECs does not have access to the reference Forms, so any concern from references would not be incorporated in the S/TC evaluation).

An EE Judge is typically a Judge who has substantial experience in performing full evaluations and thus it is assumed that they are very familiar with all the recommendations made in §8.2 and will take those recommendations into account when performing expedited evaluations.

### **8.2 Recommendations to Judges on the Rating Categories**

As specified in the Manual, for each Nominee, IEEE Judges shall assign a numerical score between 0 and 100 (with 100 being the highest) to the four Rating Categories below (each of which shall carry a weight):

1. Individual Contributions/Evidence of Technical Accomplishment (weight = 40/90)
2. Strength of S/TC Support (weight = 25/90)
3. Strength of References Support (weight = 15/90)
4. Professional Activities, IEEE and non-IEEE (weight = 10/90)

In the next subsections, guidance to IEEE Judges for assigning a score to the four Rating Categories will be given.

### **8.2.1 Individual Contributions/Evidence of Technical Accomplishment**

Individual contributions of the Nominee are detailed in the IEEE Fellow Grade Nomination Form, in one of four Nomination Categories: Application Engineer/Practitioner, Educator, Research Engineer/Scientist, or Technical Leader.

In all cases, the contributions must be based on technical achievements only and must have already had an impact on the field or society at large (see Evaluation Principles in §4). The contributions can take the form of a new and significant piece of theoretical and/or experimental work leading to an important advance in the state of the art, or the development of impactful products or systems, or the advancement of industry practices and standards. And finally, Fellow elevation is for specific impactful contributions rather than for a body of work.

In scoring this category, Judges must follow the principles and perform the tasks described in §4, assess the relevant evidence depending on the Nomination Category as described in §5, and assess impact and role of Nominees as described in §6, where the difficult case of Nominees working on proprietary or classified technologies is addressed.

### **8.2.2 Strength of S/TC Support**

IEEE Judges need to score this category based on a variety of elements, and must not simply copy and paste the numerical score on the S/TC Evaluation Form. In fact:

- The S/TC scores are not “normalized”<sup>2</sup> and thus they cannot be used as is when comparing Nominees in different S/TCs because different S/TCs use different scoring methodologies making it impossible to fairly compare Nominees evaluated by different S/TCs.
- The score assigned by S/TC-FECs is not an absolute indicator of the degree of qualification of the Nominee but simply a relative one which is perhaps functional to producing a rank.
- The “Strength of S/TC Support” score assigned by Judges is not simply a number reflecting how well the S/TC has ranked the Nominee, but also of how well the S/TC has made the case for that rank and justified its support. Judges must reflect in their scoring how convincing and well-made the S/TC case is.

As specified in Sect. 17.3 of the Manual, IEEE Judges should assign the “Strength of S/TC support” score based on:

- Synthesizing all the information in the Nominee’s S/TC-FEC Evaluation Form, i.e. score, rank, narrative, and multiple-choice answers

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<sup>2</sup> As specified in §4.2 of the Fellow Committee Handbook, the scores assigned by Judges to the four rating categories is normalized. Normalization is a rank-preserving transformation of the set of IEEE Judges’ scores into a set of new scores that removes scoring disparities among IEEE Judges. The normalization operation assigns a normalized score to Nominees ensuring that every Nominee that occupies the same rank  $k$  in a Judge’s ranking has the same normalized score regardless of the original score assigned by the Judge.

- Reconciling any difference between S/TC’s narrative comments and the Nominees’ scoring/ranking
- Incorporating the aggregate group of scores of all the Nominees in a S/TC to understand relative strength of support for this Nominee
- Harmonizing scores between the various Societies/Technical Councils

As also specified in Sect. 17.3 of the Manual, IEEE Judges should also look for:

- An independent verification of the cited contributions, the role of the Nominee in them, and the current (not the potential) impact
- An assessment of how qualified (or not) a Nominee is for elevation to Fellow
- Whether The S/TC Form provides new information, or merely copies from the Nomination Form

### **8.2.3 Strength of References Support**

References provide a narrative detailing the contribution of the Nominee, the reasons the Nominee meets or does not meet the requirements for Fellow grade, and a categorization of the degree of qualification of the Nominee.

References serve as advocates for the Nominee. Individuals submitting References are also expected to describe their relationship to the Nominee. This explanation may expand on the accomplishments asserted in the Fellow Nomination itself, or may offer additional information about the Nominee not addressed in the Fellow Nomination Form.

As for the previous rating category, the Judge’s score for this category is a measure not only of the aggregate strength of the support from References for the Nominee, e.g. the degree of qualification, but also of how well the References have made the case and justified their assessment.

IEEE Judges should consider placing less value on References that:

- Are not provided by experts in the same field of the Nominee
- Copy and paste from the Nomination Form
- State generically that the work is “great” without adding any other information
- Are mostly provided by the Nominee’s “circle” (same grant, institution, country, etc.)

### **8.2.4 Professional Activities, IEEE and non-IEEE**

The IEEE Activities and Non-IEEE Activities sections of the Nomination include awards, professional society membership and offices, major professional, government or international committee memberships, conference leadership, journal editorial roles, internal organization awards or licensure or professional registration within areas associated with the IEEE Fields of Interest, including, for example, Professional Engineer, MD certification, and Patent Law.

The IEEE and non-IEEE activities shall be evaluated based on length and type of service as well as degree of responsibility and scope encompassed in the offices held. IEEE Judges shall assess the *quality and impact* of the professional activities of the Nominee.

Awards are generally indications of technical accomplishment and recognition and not a professional activity, but they are often listed here.

## **9. Further Reading**

For further details on the normative requirements for the IEEE Fellow Nomination and Evaluations process as well as the eligibility requirements of all the participants in the IEEE Fellow process, please see the IEEE Fellow Committee governing documents posted at <http://www.ieee.org/fellows>.

Also, please note that this Recommendation Guide does not replace the [Help Guide](#) for using the Fellow evaluation web application.