

Meeting Participants

Board Members

Denis Ranque, France, CAETS President	Rita Hofmann-Sievert, Switzerland
Manuel Solanet, Argentina, CAETS Past-President	Nils O. Andersen, Denmark
Nevin Duic, Croatia, CAETS President-Elect	Robert Pullen, South Africa
Ruth David, United States, CAETS Secretary/Treasurer	Cather Simpson, New Zealand
Ulrich Wagner, Germany	Nasim Khan, Pakistan (virtual)

Other Attendees

Kylie Walker, Australia	Yves Bamberger, France
Cath Latham, Australia	Frank Behrendt, Germany
Carrie Hillyard, Australia	Elin Elliott, Sweden
Vedran Mornar, Croatia	Gosta Lemne, Sweden
Gerard Creuzet, France	Nadine Aubry, United States (virtual)

Meeting Minutes

CAETS President Denis Ranque opened the meeting at 0830 by welcoming Board Members and other attendees who were physically present as well as virtual participants.

1. **Action:** Approval of Agenda
The meeting agenda was approved as presented.
2. **Action:** Approval of Board Minutes of 20 September 2021
The 2021 Board Minutes were approved as presented.
3. Report of the Secretary/Treasurer
 - a) Information: 2021 Financial Audit Report
CAETS Treasurer Ruth David reported the 2021 Financial Audit was completed with no issues; a copy of the summary statements was provided in the Board materials. She noted that Operating Expenses had been well below the Operating budget for several years due primarily to the lack of travel. As a result, CAETS net assets had grown to \$343, 673; after discussion, it was agreed that the Treasurer should investigate low-risk, liquid investment options for approximately \$200,000 of the reserve funds to generate income. Frank Behrendt, who chaired the Audit Committee, commented that the records were clear and well-documented.
 - b) Information: 2022 Financial Status
The Treasurer noted that 2022 Operating Expenses were projected to slightly underrun the Operating Budget, but there remained some uncertainty due to unbudgeted expenses relating to editorial support for the CAETS Energy Report. NATF provided an estimate in the amount of 30,000 Euros for editing the report (including annexes); that expense will be equally split among NATF, CAETS, and US NAE. Additional expenses may be incurred in development of derivative products to support communications with targeted audiences. It also was noted that two member academies have not yet paid 2022 member dues.

c) **Action:** Approval of 2023 Operating Budget

The Treasurer briefly discussed the preliminary 2023 Operating Budget, noting that projected expenses were below projected revenues. She also noted that the budget included a line item of \$5,000 for the CAETS Communications Prize; this item is to be discussed during the Council Meeting on 29 September. The Operating Budget was approved as presented subject to Council approval of the CAETS Communications Prize item in the amount of \$5,000.

d) **Information:** 2023 Rotation Schedule

CAETS Secretary Ruth David briefly discussed the 2023 Rotation Schedule, noting several changes. Meeting host designations were altered as the United States negotiated a swap with Germany, and the Czech Republic negotiated a swap with Australia. Meeting host designees have been confirmed for 2023 (Croatia), 2024 (Finland), 2025 (Australia), and 2026 (Germany). She also noted that the following members will be asked to nominate Board Members in the next cycle (to be elected during 2023 Annual Meetings): Australia (2024 President-Elect); Slovenia (2024-2025 Board); China (2024-2025 Board); Serbia (2024-2025 Board); Sweden (2024-2025 Board).

e) **Information:** 2023 Board Nominees

The Secretary reported that Denis Ranque (NATF) was elected as 2022 CAETS President via email vote with unanimous consent by 29 of the 31 member academies (no response received from 2 member academies). The election was finalized upon completion of the poll on 30 June 2022.

She noted two additional elections were added to the traditional slate of nominees: Vedran Mornar (Croatia) as 2023 CAETS President to succeed Neven Duic, who was elected in 2021 as 2022 CAETS President-Elect; and Cather Simpson (New Zealand), to serve on the CAETS Board (2022-2023), replacing Geoff Chase who was elected to this term in 2021 but is unable to serve.

Additional nominees include: Mike Hannula (Finland) for 2023 President-Elect; and Nadine Aubrey (United States), Lucas Noldus (Netherlands), Andras Sollosi-Nagy (Hungary), Jaime Dominguez (Spain) for 2023-2024 Board Members.

Biographical information for all nominees was provided in the Board materials.

4. **Discussion/Action:** CAETS Dues Structure

The Treasurer briefly reviewed the history behind the current CAETS Dues Structure and establishment of the Ad Hoc Committee charged with review of that structure. She noted that in accordance with the 2021-2026 CAETS Strategy, this is the first of periodic reviews which are to occur at 5-year intervals going forward. The Ad Hoc Committee, which included representatives from Sweden (Tuula Teeri, Chair), Argentina (Manuel Solanet), Korea (Oh-Kyong Kwon), South Africa (Bob Pullen), and the United Kingdom (David Thomlinson), provided two options for Board consideration, in preparation for a recommendation to the Council on 29 September 2022. She noted that because dues are established 2 years in advance, 2023 dues would remain unchanged but, if approved by the Council, a new structure could be implemented beginning in 2024.

The first option proposed a structure based on Gross Domestic Product (GDP) and GDP per Capita Purchasing Power Parity (PPP); a dues table was developed to “bin” each academy in accordance

with these two indicators. The recommended structure included 7 levels (\$1030, \$2060, \$3090, \$4120, \$5150, \$6180, \$7210). Implementation of this structure would increase dues for 21 academies (delta from \$1030 to \$3090); decrease dues for 6 academies (delta from -\$1030 to -\$4120); with dues remaining unchanged for 4 academies. With this option, annual dues payable would increase by \$24,720.

The second option proposed three indicators: GDP and GDP/Capita PPP (same as option 1) together with High-Tech Exports, with all data downloaded directly from World Bank indicators (<https://data.worldbank.org/indicator>). An algorithm was developed using an iterative approach with dual objectives of minimizing impact on existing member academies while providing a defensible (and repeatable) methodology for use in periodic reviews as well as in setting dues for new member academies. All indicators were first normalized to 0-1 ranges; the algorithm used was $\text{Sum} = \text{GDP Norm} + 0.15(\text{GDP/Capita PPP Norm} + \text{High Tech Exports Norm})$. Academies were ranked by Sum and breakpoints were identified for 3 levels (\$6180, \$3090, \$1030). Implementation of this structure would increase dues for 5 academies (delta from \$1030 to \$3090); decrease dues for 3 academies (delta from \$1030 to \$3090), with dues remaining unchanged for 21 academies. With this option, annual dues payable would increase by \$3090.

Concerns were voiced regarding the number of dues levels in option 1, the use of High-Tech Exports in option 2, and the use of GDP/Capita PPP (vs nominal) in both options. Various alternatives were discussed, including making the new structure effective only for newly elected members.

After discussion, members endorsed option 2 with modifications. First, rather than using single-year data for the indicators, it was recommended that a 3-year sliding average be used for each. Second, it was recommended that the dues levels be increased to \$6500, \$3500, and \$1500 in order to generate additional revenues to support CAETS Strategy Implementation.

Board Members approved a recommendation to the Council that a new dues structure be implemented beginning in 2024 (pending Council approval on 29 September 2022), with three levels (\$6500, \$3500, \$1500), using the algorithm $\text{Sum} = \text{GDP Norm} + 0.15(\text{GDP/Capita PPP Norm} + \text{High-Tech Exports Norm})$ to determine schedule placement for member academies.

5. Discussion: CAETS Strategy Implementation

The President opened the discussion of CAETS Strategy Implementation noting that the published documents provided a good backbone and processes for implementation, but key questions remained. In particular, “what does CAETS wish to accomplish” and “what can CAETS do for member academies”? He noted that the 2022 Energy Report represented a significant milestone for CAETS and observed that there are lessons to be learned from that effort. He invited Yves Bamberger, who chaired the effort, to present his observations.

Bamberger noted that while report development was a 2-year effort, too much time up front was required to attract participants and that almost no support was provided by the CAETS Secretariat. He contacted all member academies seeking participation and established a structure that included 7 individual working groups, each responsible for development of a chapter for the report, together

with a steering group that included co-chairs from each working group. He observed that it would be of value to maintain the extensive array of talent assembled for this effort by establishing an Energy Community consisting of a small core group together with a network of fellows from member academies, noting that sub-communities would likely emerge around specific topics.

Discussion followed with several attendees noting the importance and value of this effort as well as the opportunity to capitalize on the broad participation by addressing other energy-related topics such as eMobility (relevant to CAETS 2023 in Croatia); how the Russian invasion of Ukraine is reshaping the energy system in Europe; resilience of energy systems; and identification of immediately deployable energy-related technologies as well as high-impact emerging technologies.

Attendees also noted the need to address other topics of global importance, including hard engineering issues, such as the scarcity of water and food resources; mitigation of the devastating effects of floods; impacts of autonomous vehicles; and healthcare technologies (leveraging CAETS 2022).

There was limited discussion of how best to develop and support CAETS communities around topics of interest. Attendees identified two community tools that may be of value in sustaining communities: SLACK and MIRO. The Secretary committed to solicit other ideas and investigate options.

Discussion also identified the need to better understand what topics are of primary interest to member academies. The Secretary committed to survey member academy interest in both existing working group topics and topics of high priority to their academies.

6. Information/Discussion: Effective Communications

Kylie Walker, Chief Executive Officer of the Australian Academy of Technology and Engineering, provided a brief presentation focusing on how to most effectively communicate the work of CAETS to targeted audiences. Her remarks emphasized focus on “your audience (WHO), your aim (WHY, why now), and your ask (WHAT would you like them to do as a result of the communication).” She also highlighted the need for clarity and brevity in all communications, noting the need for 2-page summaries of major findings/recommendations accompanied by explanatory sections (no more than 15 pages) detailing the meaning and implications of those key points.

Discussion focused on how member academies with on-staff communications teams might help CAETS going forward. Representatives from both Australia and New Zealand offered assistance. This will be coordinated through the CAETS Communications Committee.

7. Discussion: Potential Updates to Operating Guidelines

The Secretary identified several areas in the CAETS Operating Guidelines that, based on first year experiences, would benefit from clarification/updates.

A new task, to be completed no more than 2 months after each annual meeting, will be inserted into the Secretariat section: A survey of all member academies regarding their interest in participating in established Working Groups/Communications Committee, names of their Points of Contact (if interested), and interest in new topics. The CAETS Members Directory will be reformatted to include the identified POCs and contact information.

After discussion, it was agreed that the leadership structure for Working Groups, which recommends a Chair and a Deputy Chair (to succeed the Chair for continuity) will remain as written; Working Groups will be encouraged to comply.

An item will be added to the Working Group section stating that “Working Groups may not authorize the expenditure of funds in anticipation of CAETS reimbursement absent prior approval by the Secretariat.”

An item will be added to the Working Group section stating that “Working Groups must clearly identify target audiences and draft a communications plan that incorporates best practices for effective communications.” Additional guidance will be provided in the CAETS Style Guide.

It was suggested by the Chair of the Energy Working group that CAETS implement a Conflict-of-Interest Policy and declaration for use by Working Groups during development of reports/position papers/statements. After discussion, it was agreed that CAETS should do so; the Secretary will adapt an existing policy (US National Academies of Science, Engineering and Medicine, which is aligned with CAETS nonprofit incorporation status) for CAETS use.

It was agreed that the Communications Committee Charter will be updated to include providing guidance on effective communications via the CAETS Style Guide.

8. Discussion: Increasing CAETS Member Participation

This topic was addressed in part during the discussion of Strategy Implementation. It was noted here that member participation throughout the year, rather than only during the week of CAETS Annual Meetings, is needed to sustain activities. And engagement at the fellows-level is vital to success as they bring the technical expertise and awareness needed to effectively fulfill CAETS objectives.

An additional topic of discussion focused on expansion of CAETS membership through recruitment of new member academies. Recent efforts to recruit the Brazilian National Academy of Engineering have not yet been successful, but will continue. Singapore, Malaysia, Israel and Egypt were identified as potential candidates for membership; the Secretary will further research these prospects and report results to the Board.

9. Information: IVA Working Group on Cyber Threats

The IVA Working Group on Cyber Threats to Nuclear Systems was initiated approximately 4 years ago. During the 2020 Board Meeting IVA proposed making this a CAETS-sanctioned activity; after discussion, the Board declined to do so. IVA was invited to contact individual CAETS member academies to solicit their participation. Given that the topic is relevant to CAETS member academies, IVA was invited to update the Board during the 2021 and 2022 annual meetings.

Gosta Lemne, IVA Fellow, provided a brief status update on the effort. He indicated that they expect to publish a technical report, based entirely on open sources, in approximately two weeks and will share that report with all CAETS member academies. Additionally, while bi-lateral contacts are growing, the IVA Working Group is still seeking additional participation from CAETS member academies.

10. New Business

The President invited members to raise new business items. The Pakistan Academy of Engineering submitted for consideration an issue relating to the devastating floods that had occurred in Pakistan in 2022 that claimed the lives of more than 500 individuals. Noting that many experts are attributing the floods to climate change, PAE is seeking experts to help ascertain facts and to identify engineering solutions to help circumvent such disasters in any country in the future.

This issue also had been discussed when considering potential topics for future CAETS work. The President observed that it appears insufficient effort is devoted to *adapting* to climate change. This topic will be included in the upcoming survey of member academies to determine their high-priority topics of interest.

There being no further new business, the meeting was adjourned at 1250.