Governance of the DUNE Collaboration

(Draft Version 1.0)

Last amended on April 9, 2015

The DUNE Collaboration

Table of Contents

Preamble

1 Preparation, Approval and Amendments of the Agreement

2 Collaboration membership

3 Institutional Board

4 Co-Spokespersons

5 Deputy Spokesperson

6 Executive Committee

7 Collaboration General Assembly

8 Young ELBNF

9 Technical Coordinator and Resource Coordinator

10 Other Management Structures

11 Dissenting opinions and Procedure to Appeal

12 Effective Day and Duration

13 Attachments

Records of drafts and amendments

Preamble

The DUNE experiment is a multi-purpose neutrino and nucleon decay experiment that will use the Fermilab accelerator complex, a neutrino beam line, a near detector complex, and a far detector composed of a set of large liquid argon TPC's situated deep underground at the Sanford Underground Research Facility, Homestake, South Dakota, U.S.A. The DUNE experiment will be designed and constructed by the collaborating institutions (The DUNE Collaboration). This document, "Governance of the DUNE Collaboration" (GDC) provides a formal framework of the governance of the DUNE Collaboration. The participating institutions and collaborators recognize that the DUNE experiment is an exciting and important experiment that must be designed, constructed, operated and completed successfully. Thus, all participants agree that they will do their best to collaborate in a congenial and constructive manner beyond the language of this document for the ultimate success of the experiment. The relationship between the LBNF and the DUNE, formerly known as "ELBNF", collaboration as well as their respective roles are described in the "Draft Whitepaper on LBNF International Governance, Version 3, 15 January 2015" (See Attachment A.1). The GDC is prepared by a committee appointed by the interim Institutional Board (IB) of the ELBNF proto-collaboration. They are: Brajesh Choudhary, Bonnie Fleming, Chang Kee Jung (Chair), Yannis Karyotakis, Joe Lykken (ex-officio) and Alfons Weber.

Article 1
Preparation, Approval and Amendments of the Agreement

This document shall become effective with an approval by a 2/3 majority vote by the current DUNE interim IB, which will also signify the commencement of the formal DUNE collaboration. Amendments to this document can be made in the future as needed by a 2/3 majority vote by the DUNE IB. The proposed amendments must be announced at least 4-weeks ahead of a face-to-face IB meeting and the outcome will be determined by a secret vote.

Article 2
Collaboration Membership

§ 2.1 Founding Membership of the DUNE Collaboration

The founding membership of the DUNE collaboration comprises all individuals who signed the Letter of Intent, "An Experimental Program in Neutrinos, Nucleon Decay and Astroparticle Physics Enabled by the Fermilab Long-Baseline Neutrino Facility", submitted to the Fermilab Program Advisory Committee on December 22, 2014, have agreed to participate in the DUNE experiment, and belong to academic institutions that have at least one faculty member (or equivalent) with relevant expertise for the DUNE experiment.

§ 2.2 Admission of New Institutions and New Members to DUNE

A prospective new institution, after conferring with the Co-Spokespersons, will submit a written application to the Institutional Board (IB) at least four weeks prior to the meeting of the IB at a regularly scheduled collaboration meeting. The application will include a proposal stating the intended contributions that the prospective institution is proposing to make to the experiment and a well thought out plan for the group's effective participation in the experiment, and include CV's and past research experience of the proposed senior members (faculty or equivalent) from the institution. For a successful application, there must be at least one senior member in the

institution who has relevant expertise for the DUNE experiment. The IB Chair will circulate the application materials to the IB members prior to the meeting and put consideration of the application on the agenda of the IB meeting, which will include a presentation by the prospective institution. The IB may ask for verbal or written clarifications of items in the application. The IB may: (1) approve the proposal and formally admit the institution to the Collaboration, (2) request written clarifications to be considered at the next IB meeting, or (3) reject the proposal.

An IB approval should be sought if new persons of rank equivalent to a tenured faculty at a member institution wish to join the collaboration.

The IB will attempt to make decisions on admission of new institutions or new members by consensus. If consensus is not possible, an "open (non-weighted)" vote will be taken on admission. Admission will require a 2/3 majority vote, in favor of the application, of those representatives with the right to vote present and voting (an abstention is not a vote for this purpose). If needed, the vote can be conducted electronically.

§ 2.3 Secession from DUNE

An institution may leave the collaboration by notification to the IB chair. However, the items contributed to the experiment by the out-going institution that are not covered by any relevant MOUs may not be removed without an approval by the IB.

§ 2.4 Removal of Institutions from DUNE

Removal of an institution from DUNE can be proposed by any IB or EC members for the institution's actions that are judged to be gravely detrimental to the experiment or for the institution's extreme inactivity in the experiment (more than one year). An "open" vote will be taken on removal. Removal will require a 2/3 majority vote, in favor of the removal, of those representatives with the right to vote present and voting (an abstention is not a vote for this purpose). If needed, the vote can be conducted electronically.

Article 3
Institutional Board (IB)

§ 3.1 Role of the Institutional Board

In general the Institutional Board is responsible for establishing governance rules of the DUNE collaboration and regulating the governance related issues. The responsibilities of the IB include, but are not limited to: admission of new collaborating institutions and members; oversight of Co-Spokesperson election process; election of at-large members of the Executive Committee; approval of common funds assessments; establishment and governance of detector operations shifts; and establishment of procedure for publication of scientific results and authorship rules. IB can request presentations on and discussion of specific issues relating to the collaboration or the experiment. The results of such discussions may be recorded and passed to the Co-Spokespersons as formal advice.

§ 3.2 Membership of the Institutional Board

All collaborating institution except the host lab will be given one seat in the IB regardless of their varying sizes. The Fermilab will be given two seats to reflect the lab's large DUNE membership as well as its role as the host lab of the DUNE experiment. Each institute designates its IB representative. The Executive Committee members are non-voting members of the IB.

§ 3.3 IB Voting

In general, the IB will attempt to make decisions by consensus. If consensus is not reachable, the IB can have open or secret votes on various issues. Nominally IB votes will be open votes and each IB member's vote will be counted as one vote regardless of the number of members they represents. On issues deemed to be sensitive the IB can decide to have a secret vote, which can be triggered by a motion by any IB member. The IB will then decide whether to have a secret vote or not on the issue by an open vote. Even for secret votes, nominally "one IB, one vote" principle will apply. For exceptional cases, the IB can decide to have a secret vote that is weighted by the number of members (eligible voters for general election) each IB represents, following the procedure described above.

Under normal circumstances, representatives to the IB must be present to vote; if unable to attend, a representative may designate another member of the Collaboration as a proxy. All secret votes will require that at least one-half of all IB members be either physically present or represented by a designated proxy who is physically present. Requirements for a majority vote or a two-thirds majority vote will be taken to mean a majority or two-thirds majority of all votes cast.

§ 3.4 Chair of the Institutional Board

IB Chair is elected by the IB in every odd year starting 2015 for a two-year term. The term is renewable. The IB Chair election process should commence in March in the election year. The IB Chair election will be carried out by an IB-appointed ad hoc three-member election committee. The election committee members may not stand for the election. The committee will receive up to three nominations from each IB representative. The committee will contact all nominees with three or more nominations to ascertain their willingness to stand for the election.

The election will be held electronically by using the Preferential Voting System (PVS) in which an IB submits a fully ranked list of the candidates.

§ 3.5 IB Meetings

The IB meets at every collaboration meeting in person. In addition, the IB Chair may call an IB meeting by video/phone. Every IB meeting should have a well-defined agenda and nominally a preliminary agenda should be distributed to the IB at least 4-weeks ahead of the IB meeting. In particular any agenda items containing proposals that require voting by IB should be presented to the IB along with any supporting materials at the time of distribution of the preliminary agenda.

§ 3.6 IB Committees

The IB or its Chair may establish various committees as needed.

Article 4
Co-Spokespersons

During the proposal phase of the experiment considering the international nature of the project, it is generally desirable to have one co-spokesperson from US institutions and the other from non-US institutions.

§ 4.1 Number of Co-Spokespersons and their Role

There will be two equal Co-Spokespersons of the collaboration. The Co-Spokespersons are the scientific leaders and representatives of the collaboration. The Co-Spokespersons will equally share leadership, authority and responsibilities. The longest serving of the Co-Spokespersons serves as the Executive Committee Chair, and the shortest serving of the Co-Spokespersons serves as the Collaboration General Assembly Chair. The Co-Spokespersons are responsible for preparing agendas for collaboration meetings. The Co-Spokespersons will work very closely with

the Executive Committee on all major collaboration matters, seek advices from the Institutional Board, and bring major issues to the Collaboration General Assembly for discussions. The Co-Spokespersons will also work closely with the host lab Director, the LBNF/DUNE International Joint Oversight Group (IJOG) and the LBNF management team. The Co-Spokespersons will bear authority and responsibilities for the day-to-day matters of the experiment.

§ 4.2 Election Procedure and Terms

The Co-Spokespersons elected prior to the effective date of this document will serve two and three year terms, respectively, from March 2015 in order to create a staggered election of a new Co-Spokesperson each year. The Co-Spokesperson elected hereafter will serve a two-year term, and the term is renewable. However, it is renewable only once. The Co-Spokesperson election process should commence in January every year. The IB Chair will initiate the election process by establishing a Co-Spokesperson Search Committee (CSSC). The composition of the search committee will be proposed by the IB chair and will be approved by the IB. The CSSC members may not stand for the election. The committee will choose its own Chair. CSSC will then receive nominations from all eligible voters (up to three nominations per nominator). The committee will contact all nominees with three or more nominations to produce an initial list of candidates who are willing to stand for the election. The list may contain additional candidates whom the committee finds well suited for the Co-Spokesperson position. The committee will then interview the candidates and produce a short list (nominally comprises three candidates) which will be presented to the collaboration for a general election. In this process, the committee will seek input from the host lab Director.

The election will be held electronically by using the Preferential Voting System (PVS) in which a voter submits a fully ranked list of the candidates. All collaborators (Ph. D.'s, engineers, technicians and graduate students) who have been the members of the DUNE collaboration for at least one year prior to the election opening date will be eligible to vote. Further requirements for voter eligibility may be imposed by the IB.

§ 4.3 Removal of a Co-Spokesperson

Any of the Co-Spokespersons can be removed at any time by the IB by a secret ballot of at least 2/3 of the sum of those present plus those voting by proxy (to the Chair) at a regularly scheduled Institutional Board meeting. A two-week notice is required for a vote for removal and such a vote will be taken if at least five IB members propose such a vote to the Chair. In the event of a removal, the open position will be filled following the procedure described above. The newly elected Co-Spokesperson will have a term that includes the remaining term of the removed Co-Spokesperson in addition to the nominal two-year term.

Article 5
Deputy Spokesperson

§ 5.1 Selection of Deputy Spokesperson

The Deputy Spokesperson position in the DUNE collaboration is an optional position. If the elected Co-Spokespersons see a need for such a position, they can nominate a person to fill the position with specified roles that are agreed between the Co-spokespersons and the nominee. After a brief presentation of the nominee to the IB by the Co-spokespersons, the IB will confirm or reject the nomination with a secret vote. The confirmation will require a simple majority vote of the IB members voting. The term of the Deputy Spokesperson is one year and renewable.

§ 5.3 Removal of the Deputy Spokesperson

Deputy Spokesperson can be removed at any time by the IB by a secret ballot of at least 2/3 of the sum of those present plus those voting by proxy (to the Chair) at a regularly scheduled Institutional Board meeting. A two-week notice is required for a vote for removal and such a vote will be taken if at least five IB members propose such a vote to the Chair. In the event of a removal, the open position will be filled following the procedure described above. The term of the newly appointed Deputy Spokesperson will be the remaining term of the removed Co-Spokesperson.

Article 6
Executive Committee (EC)

§ 6.1 Role of the Executive Committee

The Executive Committee is responsible for setting scientific and technical objectives and priorities of the DUNE collaboration taking account of the financial aspects as well as other resources. The EC establishes procedures for making technical choices, and will oversee progresses and developments in various projects. The EC will also advise the Co-Spokespersons on all major collaboration matters.

§ 6.2 Membership of the Executive Committee

The EC will consist of three at-large elected members, two appointed members by the Co-Spokespersons and the following five ex-officio members: the Co-Spokespersons, the Technical Coordinator, the Resource Coordinator and the IB Chair. If the Deputy Spokesperson is appointed by the Co-Spokespersons with an IB confirmation, s/he will be additional ex-officio member of the EC. The longest serving of the Co-Spokespersons serves as the EC Chair.

§ 6.3 Election, Appointment and Terms

There will be three at-large members elected each year in April by the IB. The election process will start with nominations by the IB, each nominating up to three names. The nominees with three or more nominations can stand for the election. The election will be held using a simple secret voting system with each IB voting for three names. The top three vote getters from a single round of vote will be declared elected for the positions. This procedure does not include a vote from the IB Chair unless such a vote is necessary to break a tie. (The Chair can vote for up to three nominees, if necessary, to break ties.) Immediately after the at-large member election, the Co-Spokespersons will start the process of appointing two EC members by nominating two names to the IB. After a brief presentation of the nominees to the IB by the Co-spokespersons, the IB will confirm or reject the nomination with a secret vote. The terms of the elected and appointed EC members are one year.

Article 7
Collaboration General Assembly (CGA)

The DUNE Collaboration General Assembly is a forum of all DUNE collaboration members. All major decisions by the EC and IB as well as collaboration-wide issues should be reported and discussed at the CGA. This provides a forum where individual collaborators can express their opinions on particular issues. It also ensures that the major decisions of collaboration are made with input from general collaborators as well as the collaborators are properly informed on major issues. In general, the CGA will reach consensus on any major issues and will not conduct a

formal vote. Typically the DUNE collaboration meetings will end with a CGA meeting. The shortest serving of the Co-Spokespersons serves as the CGA Chair.

Article 8
Young DUNE

The young members of the collaboration constitute the "Young DUNE". These are generally students as well as post-docs in an early stage of their career (1st postdoc). The exact membership of the Young DUNE group can be defined by the group itself and the group will elect its own Chair based on the rules it establishes. It has the right to send an observer (non-voting) to all IB meetings and to send representatives (one each) to the Publication Board and Speakers Board when such boards are established. The group will organize its own activities and will have regular meetings with the Co-Spokespersons and/or the IB Chair.

Article 9
Technical Coordinator and Resource Coordinator

The Technical Coordinator and the Resource Coordinator are selected by the collaboration and the Fermilab Director.

§ 9.1Role of the Resource Coordinator

The Resources Coordinator is responsible for coordinating the financial planning and other resources issues of the collaboration. The Resource Coordinator is responsible in particular for the management of the common resources of the Collaboration (common fund).

The Resources Coordinator prepares and chairs the meetings of the Finance Board (internal) of the experiment collaboration. The Finance Board is responsible for dealing with matters related to the costs and resources of the Collaboration, evaluation of the contributions, relations with the funding agencies and all administrative matters. The Resources Coordinator is responsible for the preparation of the Memoranda of Understanding of the Collaboration e.g. Interim MoU (preparatory phase) and Construction MoU (construction phase).

Moreover the Resources Coordinator prepares and organizes together with the host laboratory Deputy Director the **Resource Review Board** (RRB) meetings for the experiment.

The Resource Review Board is the body where the experiment resources are approved upon proposals from the collaboration, and monitored. It is composed of representatives of the national funding agencies, the host laboratory management and the collaboration management. It is chaired by the host laboratory Deputy Director. The RRB discusses the different national contributions and the Memoranda of Understanding. In- kind contributions to the Common Projects have to be approved in the RRB.

§ 9.2 Role of the Technical Coordinator

The Technical Coordinator (TC) monitors and coordinates the activities of all subsystems, and is responsible for the overall technical performance, planning and scheduling of the experiment. The Technical Coordinator is responsible for the coordination of the design, construction, installation and schedule planning. The Technical Coordinator prepares and chairs the meetings of the Technical Board of the experiment collaboration, where the technical planning of all subsystems is discussed and approved.

The Technical Coordinator organizes internal reviews in the process of drafting the Technical Design Report (TDR) for each subsystem of the experiment.

The TC is responsible for the submission of the TDRs.

The host laboratory Chief Project Officer organizes the evaluation of the TDRs by external scientific/technical expert committees. The TC is the representative of the collaboration in the communication with the Chief Project officer regarding technical issues and the feedback of the external referees.

The Technical Coordinators and the Resource Coordinators are paid during their term of office by the host laboratory in order to secure their presence at the host laboratory and to assure the direct communication with the Chief Project Officer and Deputy Director of the host laboratory.

Technical Coordinators and the Resource Coordinators are committed primarily to the experiment collaboration. They are the representatives of the experiment collaborations in the communication with the host laboratory Chief Project Officer and Deputy Director.

Article 10
Other Management Structures

There are number of aspects of DUNE which require an explicit management structure, but particular structure varies with time. The co-spokespersons maintain an organizational chart describing the current management structure; it shall be posted on the DUNE official web pages. The responsibility for the creation and modification of these management structures as well as the appointment of the leadership in such areas, other than what is specified in this document lies with the co-spokespersons. The co-spokespersons shall, however, solicit advice on the existence and leadership of such structures from a broad base including the DUNE EC and the IB. The co-spokespersons will interact actively in the management of all aspects of the experiment and will ensure adequate discussions at all levels concerning major directions and decisions.

Article 11
Dissenting Opinions and Procedure to Appeal

Any collaborators who object to the decisions made by the various DUNE leaderships can submit their objections to the co-spokespersons and the EC. If the co-spokespersons and the EC cannot resolve the situation, then ultimately the issue shall be brought in front of the IB, which shall make the final decision by consensus preferably or by vote if necessary.

Article 12
Effective Day and Durations

This agreement shall become effective as approved by the current IB of the proto-collaboration.

Article 13
Attachments

A.1 Draft Whitepaper on LBNF International Governance, Version 3, 15 January 2015

Additional rules and guidelines can be added to this document as needed. The expected attachments are:

- Working Group Conveners
- Technical Board and Resource Board Guidelines
- Speakers Board Guidelines
- Publication Board Guidelines and Publication Policies
- Authorship Guidelines
- Internal Agreements on Regional and/or Institutional Responsibilities for the Detector Construction
- Agreement on the Collaboration Common Funds Assessment

Records of drafts and amendments

April 2015: Draft prepared by the GDC writing committee (Brajesh Choudhary, Bonnie Fleming, Chang Kee Jung (Chair), Yannis Karyotakis, Joe Lykken (ex-officio) and Alfons Weber)

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Draft Whitepaper on LBNF International Governance
Version 3
15 January 2015

Prepared by the working group on LBNF International Governance:
Purniah Boddapati, Carlos Henrique de Brito Cruz, Jun Cao, Brajesh Choudhary, Paco Del Águila, Antonio Ereditato, Josh Klein, David Lissauer, Joe Lykken (chair), Antonio Masiero, Tony Medland, Marzio Nessi, André Rubbia, Michael Salamon, Jim Strait, Robert Svoboda, Agnieszka Zalewska

Introduction

A new international science collaboration is forming that brings together a global neutrino community to pursue an accelerator-based long-baseline neutrino experiment, as well as neutrino astrophysics and nucleon decay, with a large liquid argon detector located deep underground, and a high-resolution near detector. Several independent worldwide efforts, developed through many years of detailed studies, have now converged around the opportunity provided by the megawatt neutrino beam facility planned at Fermilab and by the new significant expansion with improved access foreseen at the Sanford Underground Research Facility in South Dakota. The new international team has the necessary expertise, technical knowledge, and critical mass to design and implement this exciting discovery experiment in a relatively short timeframe. The proto-collaboration has presented a Letter of Intent to the Fermilab PAC in January 2015, with a first collaboration meeting to follow shortly thereafter.

To design, build and execute this world-class program in long-baseline neutrino oscillation, nucleon decay and neutrino astrophysics research, two distinct but closely linked entities will be created:

- An international science collaboration (placeholder name 'ELBNF'), which will design, build, operate, and do scientific research with a system of neutrino detectors, and also enable other research opportunities such as searches for baryon number violating processes and neutrino astrophysics.
- A Long Baseline Neutrino Facility providing the neutrino beam that will illuminate the neutrino detectors, as well as conventional facilities and major technical infrastructure to support the beamline and the detectors.

This note sketches a proposed framework and high-level organization for this program, focused on issues of international governance and oversight of the management of the design and construction of the two projects. The organization will evolve as the program

moves from construction to operations and research. The internal management of the science collaboration is outside the scope of this document.

Overview of responsibilities

Fermilab will host LBNF and ELBNF, with substantial international participation in both. The Department of Energy Office of High Energy Physics (DOE-HEP) represents the U.S as the host country, and management of LBNF and oversight of ELBNF are delegated to Fermilab by DOE-HEP.

International contributions to the design and construction of LBNF and ELBNF will be defined in the context of bi-lateral agreements between the United States and other participating countries. The country-to-country negotiations and the formalities of the agreements are beyond the scope of this document. However, mechanisms are outlined in this document to facilitate joint consultation between the partner funding agencies, such that coordinated oversight and actions will be taken to ensure the success of the overall program.

International Joint Oversight Group

An International Joint Oversight Group (IJOG) will be made up of representatives from each funding agency involved in the program to provide global coordination across the entire enterprise. The IJOG will be chaired by the DOE Office of Science Associate Director for High Energy Physics. During the formative stages of the program, the IJOG will develop the overall division of responsibilities for the construction of LBNF and ELBNF, which will then be codified in the bi-lateral agreements. As the program matures, the IJOG would meet annually or as needed to review progress, approve annual updates to the overall strategic plan presented by Fermilab as host lab, and resolve issues that may require re-allocation of resources between the facilities and experiment projects.

The IJOG will provide oversight of the two projects through the Resource Review Board (see below), and by coordinating reports from reviews initiated, charged, and conducted by the relevant funding agencies, and by relevant laboratories such as Fermilab and CERN. In particular the DOE Office of Project Assessment will conduct reviews of the facilities project, and of U.S. contributions to the detector project, as charged by DOE-HEP. It is expected that each funding agency will carry out periodic reviews according to its own procedures, and that the reports from these reviews will be made available to the IJOG, Fermilab management, and the ELBNF collaboration.

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Resource Review Board

To provide more focused monitoring of each of the two projects, the IJOG will create a Resource Review Board (RRB) made up of representatives of that project's funding agencies and Fermilab management. The management of the ELBNF collaboration and the LBNF project participates in the RRB meetings. The RRB will be chaired by a representative of the Fermilab Director. The RRB may spawn sub-entities focused, e.g., on the facilities project or on costing. The role of the RRB will include:

- Coordinating the development of international agreements
- Monitoring the Common Projects and the use of the Common Funds
- Monitoring the general financial and manpower support
- Resolving issues that may require reallocation of responsibilities among the project's funding agencies
- Reaching agreement on a maintenance and operation procedure and monitoring its functioning

The management of the ELBNF collaboration or the facilities project will provide regular reports to the RRB on technical, managerial, financial and administrative matters. The RRB meets twice a year or as needed, and reports to the Fermilab Director and to the IJOG.

Fermilab roles and responsibilities

Fermilab is directly responsible for LBNF, including the design, construction, installation, commissioning and operation of the facilities and infrastructure that support the entire program:

- The neutrino beamline, including the primary proton beamline, target, horn, decay pipe, absorber, and all primary and secondary beamline instrumentation.
- The major technical infrastructure necessary to support the ELBNF near and far detectors, including cryogenic systems and cryostats.
- The conventional facilities for the beamline and near detector on the Fermilab site
- The conventional facilities for the far detector at the Sanford Underground Research Facility (SURF). Although the South Dakota Science and Technology Authority owns and operates SURF, Fermilab would serve as the single point of contact for the ELBNF collaboration on all matters pertaining to the far site.

Fermilab will work with the ELBNF collaboration and international partners in designing and building these facilities.

The LBNF project will be led by a Project Manager who is appointed by the Fermilab Director, with the concurrence of DOE-HEP and the IJOG. The LBNF Project Manager is a Fermilab employee who reports to Fermilab management. The LBNF Project Manager is

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responsible for the successful execution of the facilities project, ensuring that it meets all scientific, technical, cost and schedule goals.

The LBNF project will be organized as a standard line-managed project, with a WBS, and WBS sub-project managers assigned to an appropriate level. WBS sub-project managers may be drawn from any of the countries or institutions that contribute to the design and construction of LBNF, taking account of the required technical and management expertise and of the countries or institutions that plays a significant role in that aspect of the project.

The existing Fermilab Physics Advisory Committee (PAC) will provide regular international scientific peer review of the program. In addition Fermilab is creating a new peer review committee, the LBNC, which will meet more often than the PAC and focus on the scientific and experimental program of LBNF. Reports from the LBNC to the Fermilab Director would be shared with the IJOG and the ELBNF collaboration management.

Fermilab, as host lab, will also provide oversight of the ELBNF collaboration and detector construction project through:

- Regular meetings with the Collaboration leadership
- Approving the selection of Collaboration Spokespeople,
- Providing the Technical and Resource Coordinators (see below),
- Convening and co-chairing the Resource Review Board,
- Regular scientific reviews by the PAC and LBNC
- Director's Reviews of specific management, technical, cost and schedule aspects of the detector construction project
- Other reviews as needed

Collaboration roles and responsibilities

The ELBNF Collaboration is a self-organized entity bringing together scientific groups from around the world to perform this experiment. It is responsible for:

- The definition of the scientific goals and strategy of the experiment
- The corresponding definition of the scientific and technical requirements on the detector systems
- The corresponding definition of the scientific and technical requirements on the conventional facilities including the neutrino beam line
- The design, construction, installation, commissioning and operation of the near and far detector systems
- The scientific research program conducted with the detectors

ELBNF is an international collaboration involving many countries and funding agencies

that support its work and support the design, construction and operation of the detectors. Its organization will be determined by the Collaboration in consultation with the funding agencies (IJOG) and Fermilab. Some key organizational structures are likely to include: Spokespeople, an Institutional Board, an Executive Board, scientific and technical working groups, and a project structure to design and build the detector systems. The roles and responsibilities described here are specifically those that pertain to the detector construction project and do not pertain to the broader role of the Collaboration and its leadership in the scientific research program.

Spokespeople will be selected by the Collaboration according to its own rules. They are the scientific leaders of the Collaboration, responsible for scientific, technical, and organizational decisions pertaining to the Collaboration. They are the principal representatives of the Collaboration in interactions with Fermilab and its committees, with the wider physics community and with the general public. The Spokespeople are responsible to the constituent funding agencies, through the Fermilab Director, for the successful design, construction and operation of ELBNF, ensuring that it meets all scientific, technical, cost and schedule goals.

The management of the detector construction project will be delegated to a project management team led by the Technical Coordinator and Resource Coordinator. The Technical Coordinator is responsible for the common project construction and the technical integration of all detector components and systems, which are provided by the collaborating institutions. The Resource Coordinator is responsible for the overall resource planning and for ensuring that the resource planning is consistent with the constraints of different national budget circumstances and planning cycles. The Technical and Resource Coordinators report to the Spokespeople, and are selected by the Collaboration with the agreement of the Fermilab Director. They will be Fermilab employees for the duration of the project, heading a project office within the Fermilab Neutrino Division.

Experiment-Facility Interface Group

Close and continuous coordination between ELBNF and LBNF will be required to ensure the success of the combined enterprise. An Experiment-Facility Interface Group (EFIG) will be established to oversee and ensure the required coordination both during the design and construction and the operational phases of the program. This group will cover areas including:

- Interface between the near and far Detectors and the corresponding conventional facilities.
- Interface between the detector systems provided by ELBNF and the technical infrastructure provided by LBNF.

- Design and operation of the LBNF neutrino beamline. This is a particularly important activity, since the neutrino-energy spectrum and other characteristics of the neutrino beam, and the ability to measure those characteristics, are a crucial part of the long-baseline experimental program.

The EFIG comprises representatives of Fermilab management, the ELBNF collaboration, and other members as this group may deem necessary to carry out the coordination function.

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