Australian National Fabrication Facility

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Australian National Fabrication Facility

Access and Pricing Policy

Name	ANFF Access & Pricing Policy
Version	September 2010
Prepared by	Rosie Hicks
Approved by	ANFF Board
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Introduction

The Australian National Fabrication Facility (ANFF) provides access to nano and microfabrication facilities to all Australian researchers. The ANFF seeks to encourage collaboration in research. The Access and Pricing Policy is intended to ensure that there are as few barriers as possible to accessing major infrastructure for those undertaking meritorious research.

All Fabrication nodes will have **Access Committees** charged with oversighting access to the facilities, including implementing the Policy, prioritising use of facilities, and monitoring operating costs and access income.

In the early stage of operations, access to ANFF facilities will be managed by **Facility Managers**, as it is anticipated that nodes will have excess capacity and that access will be provided on a liberal basis. The full ANFF Access & Pricing Policy will come into operation at the point that each node is in the position of needing to ration access.

The Policy has been developed to ensure open and transparent access to the facility for all Australian researchers. The Policy will be reviewed by the nodes on an annual basis to ensure it meets the needs of the growing user base and maximises use of the infrastructure.

Definitions

Facility Manager – the first point of contact at the node for a new user

External users – users external to the host institution

Assisted access – a node staff member operates the equipment, is in attendance or must remain nearby to monitor operation

Unassisted access – a user operates the instrumentation without the assistance of a node staff member. Users must be preauthorised by the node.

Core time – the working day in which assisted access can be booked

Access Committee – group responsible for prioritising allocation of instrument bookings

Oversubscribed – a booking on the instrument required is not available within one month

Accessing a Node

The Access & Pricing Policy outlines the process for allocating available hours in the event that the facilities are oversubscribed, and the rates for using the facilities under the NCRIS program. Once time has been allocated in the facility, the procedure for all users accessing a node will be the same, regardless of whether the access is funded by the NCRIS program or otherwise. Users must follow the local node's policies including OH&S and after-hours access.

Access Committees

Access to ANFF nodes will be managed by an Access Committee for each node. The role of the committees is to ensure that the ANFF Access and Pricing policy is implemented at the node. Typically, the committee at each node is composed of the Node Director, Facility Manager and representatives from the major user groups. The ANFF CEO may also attend a node's Access Committee meetings.

It is anticipated that initially the groups will meet at least quarterly. Additional reviews may take place electronically or by sub-committee. The frequency of meetings is driven by the need to advise potential users of the outcome of their application within one month of submission.

Access Committees membership for each node is given below.

Application Procedures

It is expected that the first contact with a potential user will be a discussion to determine the feasibility of the project. This will establish the techniques required and enable the user to submit a detailed application.

Initial contact for new users may be:

- direct application to a node's Facility Manager (telephone / email); or
- via ANFF (website, email, telephone). ANFF will then contact the relevant node or nodes to determine availability of instrumentation.

Following initial discussions, the formal application process for accessing the instrumentation will be to complete a short project proposal (less than two pages) describing the work and the expected outcomes. Users will be asked to note any factors influencing the timing of the work, e.g., international travel, commercial production implications or grant / thesis submission dates.

In the first instance, the Facility Manager will review the application, in consultation with the Node Director if necessary, to allocate a booking. In the event that the instrument is oversubscribed, the Facility Manager will submit the application to the Access Committee for review. Copies of all applications will be lodged with the committee.

Criteria for identifying successful applicants

When demand for the facility exceeds capacity, access committees will review applications on a regular basis. Priority will be given to meritorious research from the following three groups and the committees will work to balance their needs:

- Early career researchers;
- Other public sector researchers of merit; and
- Researchers from SMEs who are able to pay commercial prices for access.

Meritorious research will include, but is not limited to, those awarded nationally competitive grants. The committee will not duplicate existing review processes. It is anticipated that up to 50% of the NCRIS allocation will be prioritised for commercial users. Spare capacity at a node may be used to meet overflow in other nodes.

Each application will be considered by the committee based on the following criteria:

1. the suitability of the techniques and facilities available at the node to contribute to the research outcomes sought;
2. the potential outcomes of the research, including knowledge and wealth creation via collaborations, papers, and patents;
3. significance and innovation of the program;
4. commercial urgency or research submission deadlines;
5. travel arrangements for interstate or international users; and
6. experience of the applicant in the use of the facility and the requirement for technical support.

Reporting

Users are asked to acknowledge the program in papers as follows:

*"This work was performed in part at the [*insert name*] node of the Australian National Fabrication Facility. A company established under the National Collaborative Research Infrastructure Strategy to provide nano and microfabrication facilities for Australia's researchers."*

The ANFF logo (available from the website) should be included on the acknowledgements slide of a presentation. In addition, users funded by travel grants will need to meet the requirements of the grant.

The Access Committee will report the number and type of users and the access income to the ANFF on a quarterly basis. These metrics will form part of the node's key performance indicators.

Pricing regime

The ANFF recognises three classes of user: PhD students; publicly funded researchers, including university researchers; and industry users. Pricing for public sector researchers is based on marginal costs only. A full listing of costs for each node, including consumables, is given in below.

International researchers will be charged at industry rates.

Conditions of access

Instrumentation funded by the NCRIS program will be available to external users at the ANFF rate for 50% of the core time or as detailed below:

- Access to the Direct Write Lithography at the Bandwidth Foundry will be up to 16 hours per week.
- University of Queensland: A maximum of five hours may be booked in one core period.

Grievances

In the first instance, grievances should be reported to the Node Director for discussion at the Node's Access Committee meeting. In the event that a resolution is not reached, the grievance should be reported to the ANFF.

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Membership of Access Committees

The ANFF CEO may attend access committee meetings at each node. The committees may also be augmented by other local experts.

VIC

- Prof. Ian Boyd, VIC Node Director (Chair)
- Mr. Steven Walker, VIC Facility Manager
- A/Prof. Sally McArthur Swinburne University
- Dr Andrew Peele La Trobe University
- Dr Brett Sexton CSIRO
- Dr Russell Walker Deakin University
- A/Prof. James Friend Monash University
- University of Melbourne representative.

ACT

- Prof. Jim Williams, ANU RSPE Director (Chair)
- Prof. C. Jagadish, ACT Node Director
- Dr Fouad Karouta, ACT Node Facility Manager
- Prof. Tim White, AMMRF ACT Node Director
- Prof. Rob Elliman, ANU Electronic Materials Engineering
- Prof. Andres Cuevas, ANU School of Engineering
- Prof. Rod Boswell, ANU Plasma Research Laboratory
- Prof. Laurie Faraone, UWA Facility Director
- Res/ Prof. Mariusz Martyniuk, UWA Facility Manager
- A/Prof Tim Senden, ANU Applied Mathematics
- Dr Hoe Tan, ANU Electronic Materials Engineering
- Prof. Barry Luther-Davies, ANU Laser Physics Centre & CUDOS

QLD

- Professor Justin Cooper-White (Director)
- Professor Paul Burn (Deputy Director)
- Associate Professor Paul Meredith
- Professor Andrew Whittaker
- Professor Mark Kendall
- Mr. Derek Hirons (Facility Manager)
- Professor Deborah Bernhardt (Deputy Director)
- Professor Greg Hope
- Mr. Alan Iacopi

NSW

- Prof Andrew Dzurak, ANFF-NSW Node Director & SNF Director
- Dr Linda Macks, ANFF-NSW Node Facility Manager (Interim)
- Mr. Gordon Bates, SNF Laboratory Manager
- Prof Justin Gooding, Chemistry
- Prof Chee Yee Kwok, Electrical Engineering & Telecommunications
- Dr Adam Micolich, Physics
- Dr Ivan Perez-Wurfl, Photovoltaics
- Prof Michelle Simmons, Physics
- A/Prof Marion Stevens-Kalceff, Electron Microscope Unit (NCRIS Characterisation Capability)

SA

- Prof John Ralston - Node Director
- Dr Terry Wilks
- Dr Rossen Sedev
- Dr Craig Priest
- Mr Philip Moore
- Mr Simon Doe (Facility Manager)
- Dr Luke Parkinson

OptoFab

- A/Prof. Michael Withford (Node Director)
- Dr Benjamin Johnston (Facility Manager)
- Mr Dave O'Connor (Bandwidth Foundry International)
- Prof. Tanya Monro (University of Adelaide)
- Dr Heike Ebendorff-Heidepriem (University of Adelaide)
- Prof. Simon Fleming (Optical Fibre Technology Centre)

Materials

- Prof. Gordon Wallace (Node Director),
- A/Prof Peter Innis (Facility Manager - UoW, IPRI)
- Prof. David Officer (UoW, IPRI)
- Prof Shi Dou (UoW, ISEM)
- A/Prof. Paul Dastoor (UoN).

Pricing Regime

The pricing regime for the facility is given below. Note that all prices are maximum prices. Standard consumables are included in cost price; however, specialised consumables or retooling will be charged to the user at cost. For further details refer to the node.

Charges are subject to annual review and may be changed without notice.

Victorian Node

The pricing regime (expressed as $/hour) is as follows:

Equipment	Booking	A	B	C	D	E	F
Cleanroom	Hourly	$50	$50	$100	$75	$100	$150
Bio Lab	Hourly	$40	$40	$100	$50	$50	$150
EBL	3-7 hrs				$200	$250	$400
DRIE (per system)	3-7 hrs	$100	$150	$200	$150	$200	$300
PECVD	3-7 hrs	$100	$150	$200	$150	$200	$300
FIB	3-7 hrs	$75	$100	$150	$100	$150	$200
SEM	Hourly	$75	$100	$150	$100	$150	$200
PVD (EBEAM)	3-7hrs	$75	$100	$150	$100	$150	$200
PVD (SPUTTER)	3-7hrs	$75	$100	$150	$100	$150	$200
POLYMER SYSTEM	3-7 hrs	$75	$100	$150	$100	$150	$200
NIL/EMBOSSING	3 hrs	$75	$100	$150	$100	$150	$200
AFM	Hourly	$75	$100	$150	$100	$150	$200
CONFOCAL	Hourly	$75	$100	$150	$100	$150	$200

EBL is initially assisted use only.

Support Provided	PhD Student	University/ PF Researcher	Industry User
Unassisted	A	B	C
Assisted	D	E	F

To gain unassisted status the researcher must complete a training course run by the node at minimal cost. Note these figures are provisional and are subject to revision following the tender process.

ACT Node

All equipment can be accessed.

Equipment	PhD Student	University/PFRA users	Industry users
All flagship equipment, in-kind equipment except MOCVD and implanter depending on requested work	$50 - $100	$50 - $100	$250-$300

International users are charged at industry rates.

Queensland Node

Access fees ($/hr) for assisted and unassisted use are as follows:

Facility	PhD Student	University/PFRA Researcher	Industry User
All NCRIS and Non NCRIS (in-kind) supported units	$50	$50	$216 unassisted $264 assisted

The fees include technical support and training, some basic clean room consumables, standard chemicals, reagents and some gases.

In addition to the hourly access rates shown above, ANFF-Q offers annual memberships based on a guaranteed numbers of hours access per year, but excluding non-standard consumables. Memberships are limited to a maximum of 50 groups initially, to ensure that commitments to all users can be met. Membership fees include NCRIS-funded and in-kind equipment. The membership arrangement is open to all users, and offers frequent users access to ANFF equipment at a very economical minimum rate of $15/hour. Two pieces of equipment, the DRIE and LSM, are included in this fee structure but due to their high running costs and the cost of service contracts a levy to cover these contracts is added to the prevailing membership rate. Current levies above the normal access fee or membership rates are:

DRIE $50 per hour

Laser Scanning Microscope $20 per hour

Membership class	Rate
50 hour increments	
• First 50 hours	$1750
• Subsequent 50 hours top up	$1500
100 hour increments	
• First 100 hours	$3000
• Second 100 hours	$2000
• Subsequent 100 hours top up	$1500

These fees are reviewed on a yearly basis and in line with budget reviews.

All access is based on a maximum of 5 hours at any one time (core period 8am – 5pm) unless extended by the Facility manager in consultation with the ANFF Qld node access committee.

All external publicly funded researchers and industry users are subject to the agreed terms and conditions of access between ANFF-Q and UniQuest.

NSW Node

Access for all tools and services will be at the rates ($/hr):

Cost Centre	UNSW PhD Student or Researcher	Non-UNSW PhD Student or Researcher	Industry User
ANFF-funded Tool	$50	$50	$250
Non-ANFF-funded Tool	NIL	$50	$250
ANFF Staff Support (in addition to any applicable tool charges)	$25	$25	$125

Hourly rates cover basic costs including clean-room garments, standard chemicals, standard metals and standard resists. Specialty materials are charged at cost. Contract work undertaken directly by Node staff using Node resources are charged at commercial rates.

*UNSW users are not charged for unassisted use of in-kind tools, and are charged $25 per hour for assisted use of in-kind tools including training.

SA Node

The pricing regime for NCRIS-supported equipment excluding consumables will be ($/hr):

	PhD Student	University/PFRA Researcher	Industry User
Assisted use	$95	$140	$200 - 350
Unassisted Use	$40	$60	$150 – 180
For characterisation equipment use only	$25	$40	$75

OptoFab Node

Hourly access costs to the facilities located at Macquarie University and the Bandwidth Foundry will be ($/hr):

Facility	PhD Students	University / PFRA Users	Industry Users
PPLN plant[1]	$75	$75	$300
Direct write laser lithography[2]	$75	$75	$300
Design services	$25	$25	$100
Precision laser micromachining[3]	$50	$50	$200

1. Direct material costs are added to these access costs. These would include the costs of items such as lithium niobate wafers, photoresists, acids, polishing compounds etc.

2. Direct material costs are added to these access costs. The typical direct material items would include items such as silicon wafers, soda lime blanks, plates, quartz blanks, photoresists, acids, PDMS, etc and typically range from $50-$150 per photo mask for example.

3. These access costs cover assistance and standard consumables such as gases, deionised water, drilling objectives, frequency doubling crystals etc. Direct materials costs are added to these access costs. The range of materials processed by this facility includes most polymers, metals, glasses and crystals. The nature of machining jobs also ranges from fabricating optical encoders on automotive component prototypes, scribing jewellery, security marks on documents and spectrographic masks from large National telescopes. In a few cases custom tooling is also required to handle bulky items. As a result, it is impossible to set a fixed material cost (associated with either the “device” or retooling) and hence those expenses are costed on an individual basis. However, in the majority of cases end-users supply their own materials thus removing this materials cost.

Speciality Fibre Fabrication Facility:

OFTC has a well established (ISO 9001 accredited) production management system including the costing of requests. Historically the vast majority of requests are on a per job basis (a request for a fibre with specific properties) rather than on an hourly basis for access per se. It is expected that requests will continue to come in like this and that OFTC will continue to quote based on the anticipated usage of equipment, human resources and consumables.

The University of Adelaide (UoA) offers fabrication services for soft glass, structured fibre preforms and microstructured fibres made from soft glass. In addition, the UoA Optofab subnode offers use of the scanning near-field optical microscope (SNOM) housed at Adelaide Microscopy.

Charges are subject to annual review and may be changed without notice. Below is the summary of the costs in accessing the Optofab equipments available at UoA.

Scanning near-field optical microscope (SNOM):

The access fees ($/hr) for usage of the EIF funded equipment at Adelaide University are:

Facility	Support provided	PhD students	University / PFRA Users	Industry Users
Scanning near-field optical microscope	Unassisted*	$100	$100	$260
	Assisted	$150	$150	$350
	Training	$150	$150	$150

**Unassisted use is available after training at Adelaide Microscopy.*

Fabrication services:

Given the diversity of requests for specific products (glass, preform, fibre) of differing materials and structures, we will provide individual quotes for each specific request. These quotes will be based on the anticipated requirement for operator time, equipment, custom tooling and consumables. For the operator time, the following labour costs ($/hr) apply:

Facility	Support provided	PhD students	University / PFRA Users	Industry Users
Fabrication services	Labour costs for usage of facilities	$50	$50	$150

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The access fees ($/hr) for usage of the EIF funded equipment at Adelaide University are:

Facility	Support provided	PhD students	University / PFRA Users	Industry Users
Scanning near-field optical microscope	Unassisted*	$100	$100	$260
	Assisted	$150	$150	$350
	Training	$150	$150	$150

**Unassisted use is available after training at Adelaide Microscopy.*

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Given the diversity of requests for specific products (glass, preform, fibre) of differing materials and structures, we will provide individual quotes for each specific request. These quotes will be based on the anticipated requirement for operator time, equipment, custom tooling and consumables. For the operator time, the following labour costs ($/hr) apply:

Facility	Support provided	PhD students	University / PFRA Users	Industry Users
Fabrication services	Labour costs for usage of facilities	$50	$50	$150

Materials Node

The pricing regime for NCRIS-supported equipment excluding consumables will be ($/hr):

Equipment	Phd Student (ex GST)	University/PFRA users (Incl. GST)	Industry users (Incl. GST)
Assisted use Unassisted use	$50 $40	$80 $60	$240 $150-$180

Consultancy – To be negotiated by each node partner independently, costing of any consultancy is to follow each node member's institutional costing/overhead structure.

Material Supply & Device Supply – Node members to provide a quotation as required utilising each node member's institutional costing/overhead structure.