



## Crew composition and Productivity validation for WDS Model

25 July 2012 v0.01

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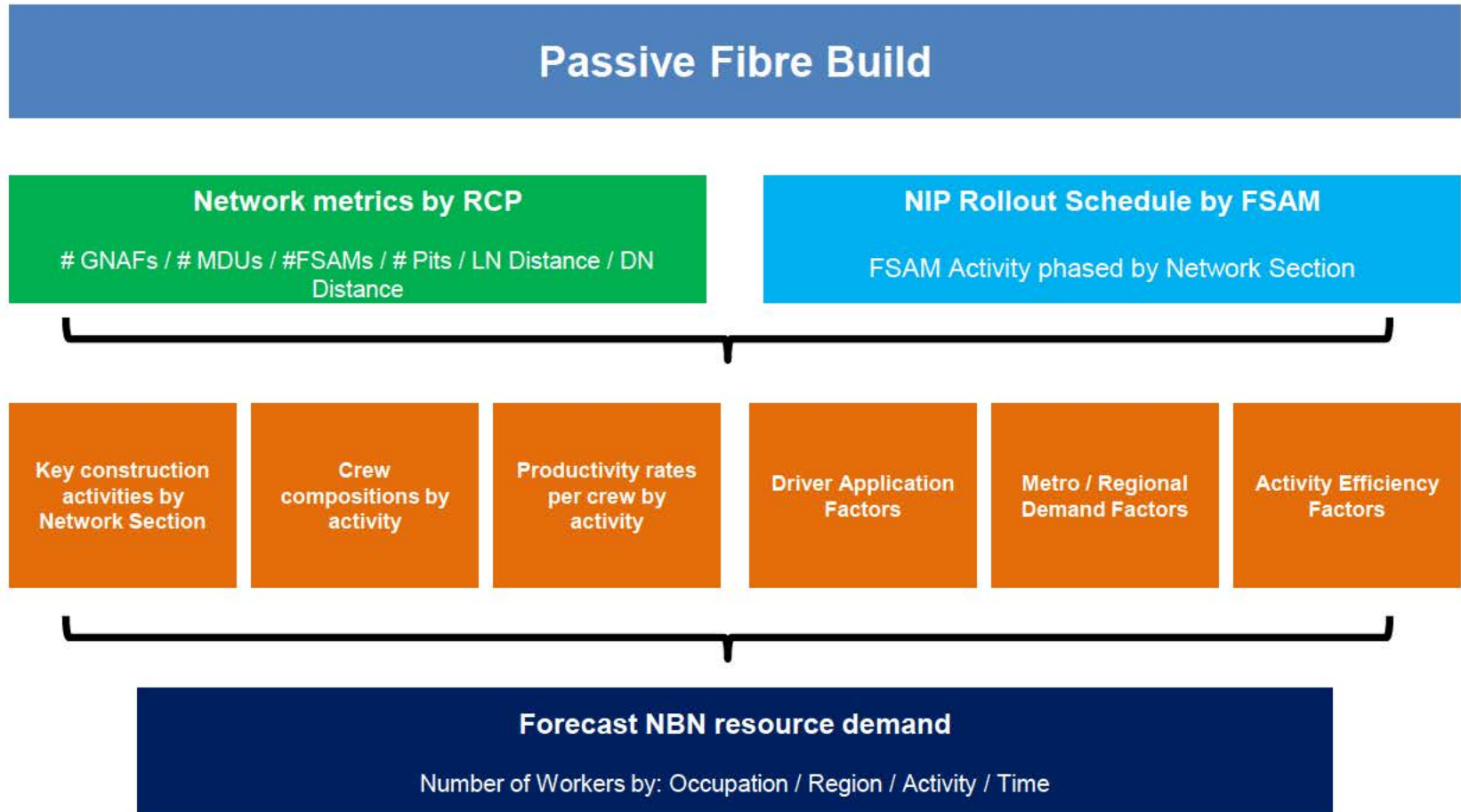
# WDS Model – Purpose & Scope

## Purpose:

- To quantify the forecast level of demand for key construction and design jobs during the NBN rollout
- Understand the effects of the most recent NIP, the Telstra deal, Type 2 network architecture and 3-1-7 FSAM activity sequencing
- Understand resourcing impacts with sensitivity analysis testing.

In Scope	Out of Scope
<ul style="list-style-type: none"><li>•Network Design</li><li>•Survey, Rod &amp; Rope</li><li>•Distribution Network</li><li>•MDUs</li><li>•Service Drops</li><li>•End User Premises Installations</li></ul>	<ul style="list-style-type: none"><li>•Active Network</li><li>•Transit</li><li>•Fixed Wireless</li><li>•Satellite</li><li>•Maintenance</li></ul>

# WDS Model – High level structure



# Network Sections & Work Activities

## Network Sections

- Distribution
- FSAM
- Installation
- Lead-Ins
- Local
- MDU
- Network Design
- Shared

## 81 Network Activities

### For example

- Distribution Underground New: Civil Construction : Boring
- Distribution Underground New : Civil Construction : Pit Installation
- Distribution Underground New : Civil Construction : Traffic Management
- Distribution Underground New : Civil Construction : Trenching
- Distribution Underground New : Install Cable
- Distribution Underground New : Splice & Test



# WDS Model – Manpower Strategy Update DRAFT – Commercial-in-Confidence

06 August 2012 v0.01

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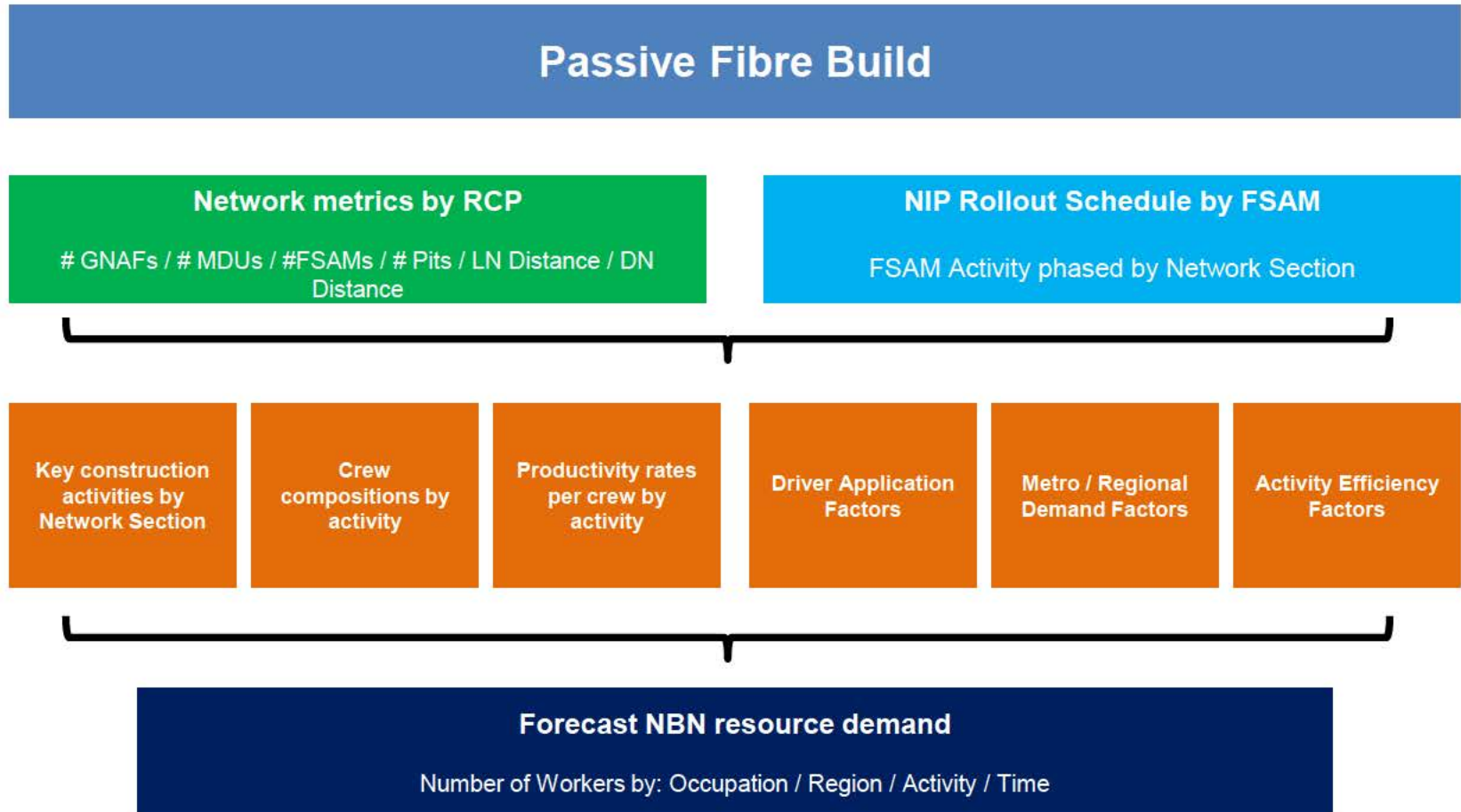
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# WDS Model – High level structure



# WDS Model - Network Sections & Work Activities

## Network Sections

- Distribution
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## 57 Network Activities

### For example

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- Distribution Underground New : Civil Construction : Trenching
- Distribution Underground New : Install Cable
- Distribution Underground New : Splice & Test



## WDS Model - Occupation Definitions

For the purposes of the WDS Model, the following occupations perform some or all of the below listed activities.

Occupation	Activities Performed
NBN Linesworkers	Rod & Rope Pit Installation Underground Haul Fibre Aerial Haul Fibre Underground Service Drops Aerial Service Drops
NBN Splicers	Ribbon Fibre Splicing Network Testing Optical Splitter installation
NBN Installers	NTD Installs



# Workforce Development Update

7 August 2012 FINAL

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# Workforce Development Update

- Updated workforce model
  - 3-1-7 modelling & Telstra remediation
  - Latest insights into productivity and crew composition
  - Latest POW and NIP
- Delivery Partner Readiness - confirming 18 month workforce plans
- Augmenting workforce development strategy
- Training & Accreditation Program – providing an industry standard for worker skills

## Expected peak demand of workers by occupation

Occupation	Internal Assumptions*
Labourers	3500
NBN Linesworkers	1500
NBN Installers	1350
NBN Splicers	1000
Earth Moving Plant Operators (incl. drilling / boring / trenching)	1000
Electrical Linesworkers	600
Fibre Network Designers	550
Road Traffic Controllers	400

### Changes since 2010 Modelling

- 8 Jobs  $\approx$  70% of workforce  
(was 5 jobs  $\approx$  80% of workforce)
- Increase in
  - Splicers
  - Electrical Linesworkers
  - Network Fibre Designers
- Decrease in
  - Road Traffic Controllers
  - Labourers
  - Plant operators
  - NBN Installers

# Workforce Development Roadmap



# Training and Accreditation Program (TAP)

## Objective:

Provide a set of national accreditations that will support the safe, efficient and effective construction and operation of the NBN.

Accreditation is obtained by successfully completing an assessment:

- conducted as part of a specified training course; or
- undertaking an assessment on a standalone basis.

There are 2 types of specified training courses:

- publically available courses that are designated to meet the requirements for an accreditation (designated course); or
- courses that are developed by NBN Co (approved training course).

NBN Co is issuing a Contract Instruction covering the following accreditations:

- NBNATC1201A NBN Safety & Awareness
- NBNAcc12030 Work Safely Near Power Infrastructure
- NBNAcc12029 EWP Rescue

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# Workforce Modelling Update

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David Auld

5 December 2012

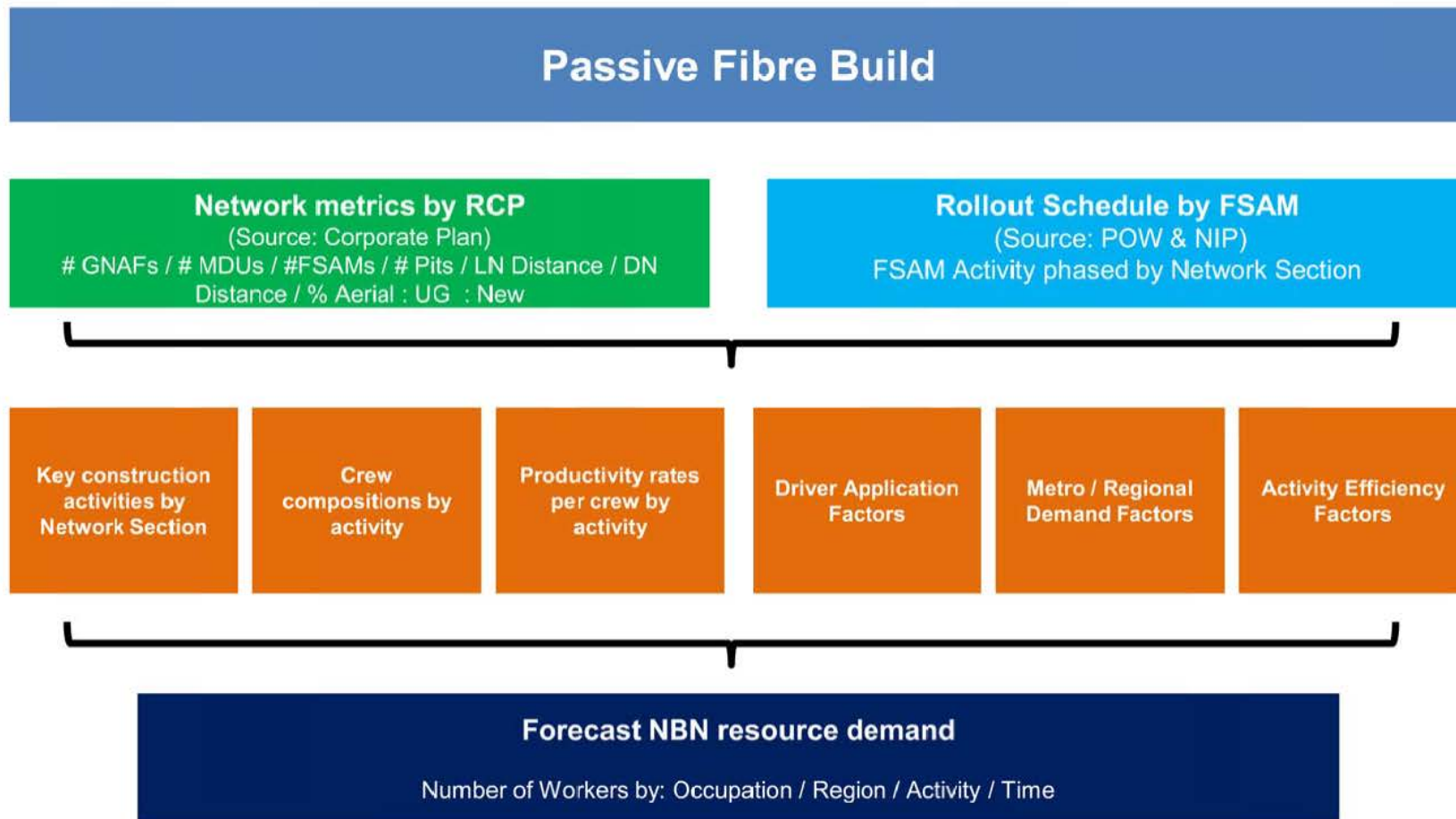
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# WDS Model – High level structure



# Network Sections & Work Activities

## Network Sections

Distribution

FSAM

Installation

Lead-Ins

Local

MDU

Network Design

Shared



## 78 Network Activities

For example

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- Distribution Underground New : Splice & Test

# 61 Workforce Demand Drivers

## Premises

- # Premises (GNAF)
- # MDU Blocks Small
- # MDU Blocks Med
- # MDU Blocks Large
- # MDU Blocks FDA
- # Satellite Premises

## Network Components

- # New Building Mounted Wireless Premises
- # FSAMs
- # FSAs
- # MDU Blocks
- # MDU Premises
- # NTU Premises
- Distribution # Pits
- Distribution # Splices
- Distribution Network Distance
- Local # Pits
- Local # Splices
- Local Network Distance Aerial
- Local Network Distance UG
- Shared # pits
- Shared # Splices
- Shared Network Distance
- Transit # Pits
- Transit # Splices
- Transit Network Distance
- # Satellite Gateway
- # New Wireless Base Station
- # New Wireless Base Station
- # New Microwave Hop
- # New Microwave Hop
- # MW Tower for FAN
- # Small POI
- # Medium POI
- # Large POI
- # Small FAN
- # DWDM for Small FAN
- # Medium FAN
- # Large FAN
- # DWDM for Medium FAN
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## Unforeseen Faults

- # Faults in Premises
- # Faults DUG Small
- # Faults DUG Average
- # Faults DUG Large
- # Faults Shared Small
- # Faults Shared Average
- # Faults Shared Large
- # Faults Transit Small
- # Faults Transit Average
- # Faults Transit Large
- # Faults LAC Small
- # Faults LAC Average
- # Faults LAC Large
- # Faults LAP Small
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- # Faults Satellite Premises



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# JB Hunter National Trainers Conference

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David Auld

19 February 2013

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# Key Facts

- 1 10m–12m premises to be passed by 2020
- 2 Construction to connect 5,900 premises per day in 2014
- 3 250,000 km of fibre cable ( $\approx 10x$  around Australia)
- 4 16,000+ new jobs created (just in construction)
- 5 2 state-of-the-art satellites to be launched  $\approx$  \$1.2b
- 6 175 page Corporate Plan & 318 page Business Case
- 7 Historic \$9b Definitive Agreements signed with Telstra (subject to conditions precedent)
- 8 Taxpayer investment  $\approx$  \$26b
- 9 Worlds largest stand-alone “wholesale only” provider of broadband
- 10 The journey has begun – 30,000+ customers



# Delivery Partners



## National

**New Developments**

VIC, QLD

NSW, ACT, WA, SA, NT

**Transit**

visionstream

**Fixed Wireless**

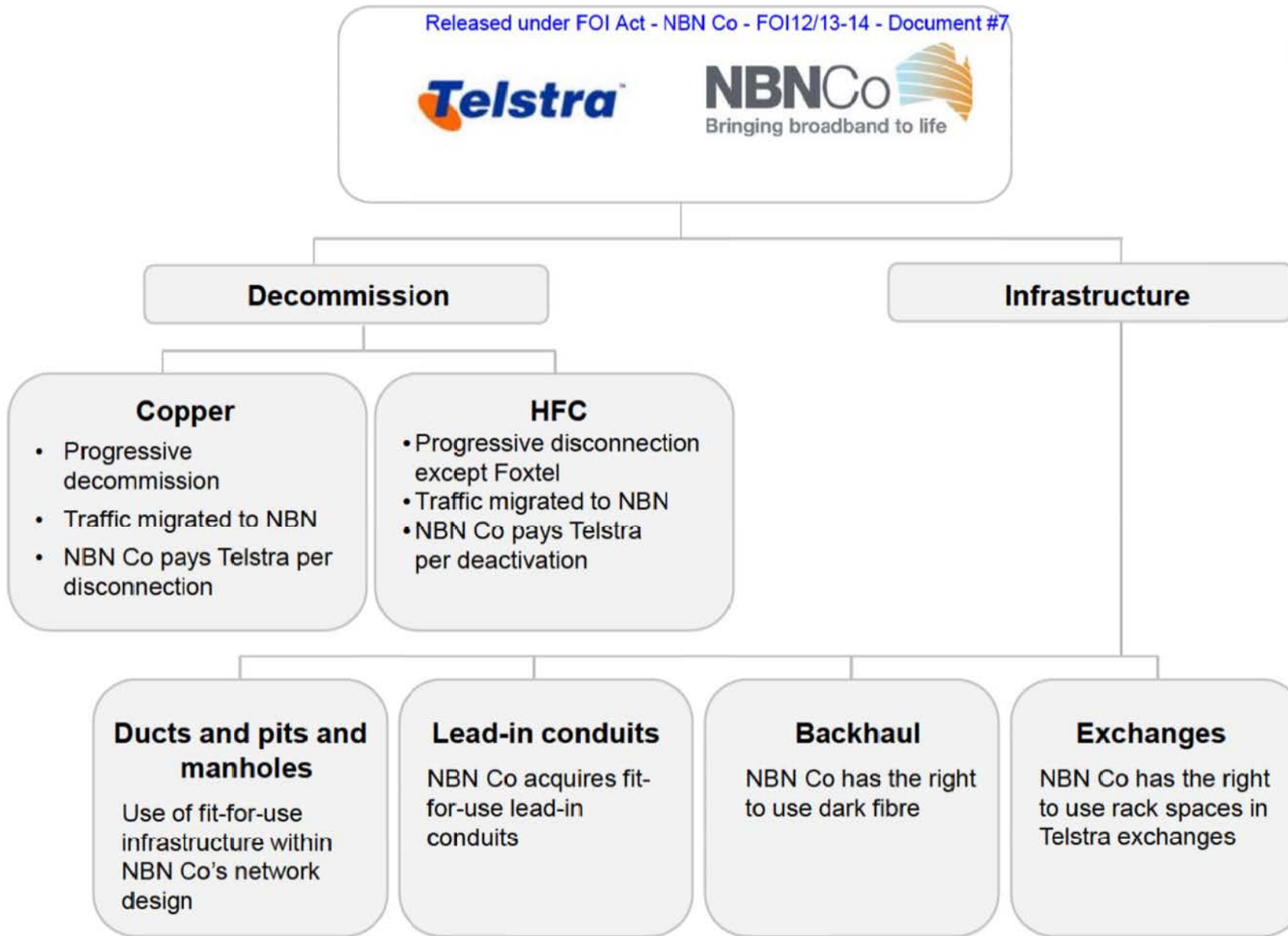
ERICSSON

**FSD & NARA**

Vic, WA, NT, SA

Qld, NSW, ACT

TAS



# Construction Phases



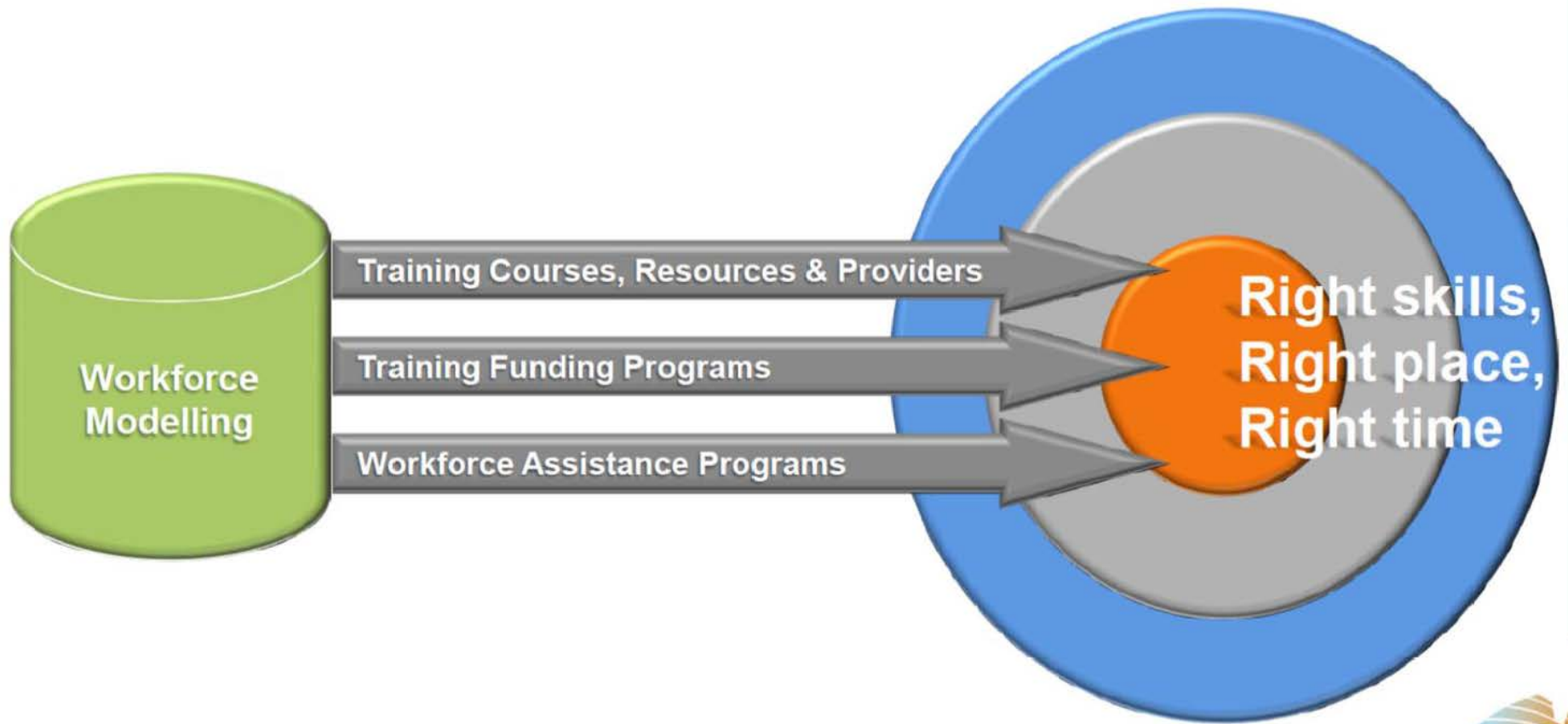
**Detailed  
Design**

Including survey,  
rodding & roping.

**Design  
Acceptance**

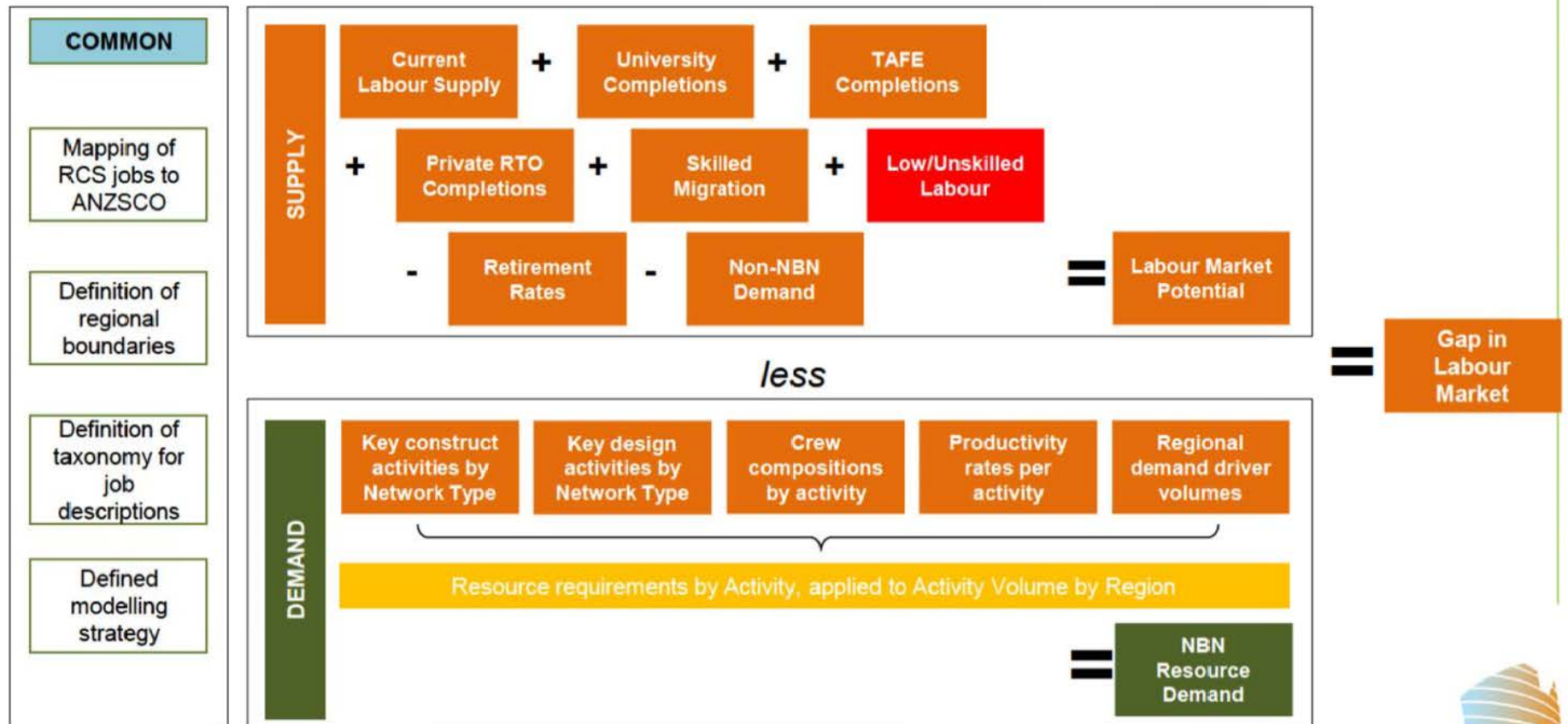
**Construction**

# Workforce Development Strategy



# Workforce Modelling

The diagram below provides an overview of the modelling methodology used to estimate the Demand and Supply of jobs required to deliver the NBN.



# 61 drivers

## Premises

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- # Faults Satellite Premises

# Workforce Modelling – Forecast demand

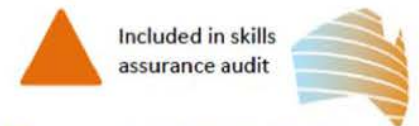
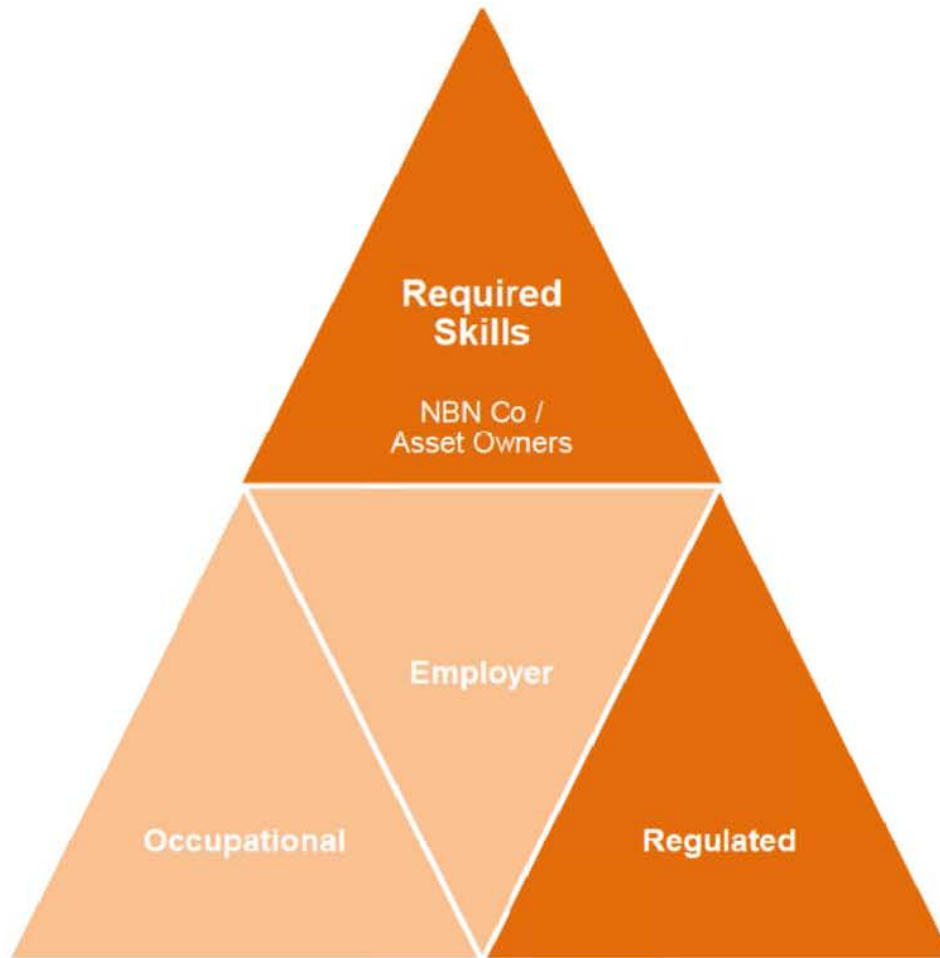


- Estimated 16,000 – 18,000 jobs at peak (based on Telstra deal)
- 40 core jobs identified using the Australian and New Zealand Standard Classification of Occupations (ANZSCO) codes.
  - 28 jobs primarily engaged in the construction of the NBN

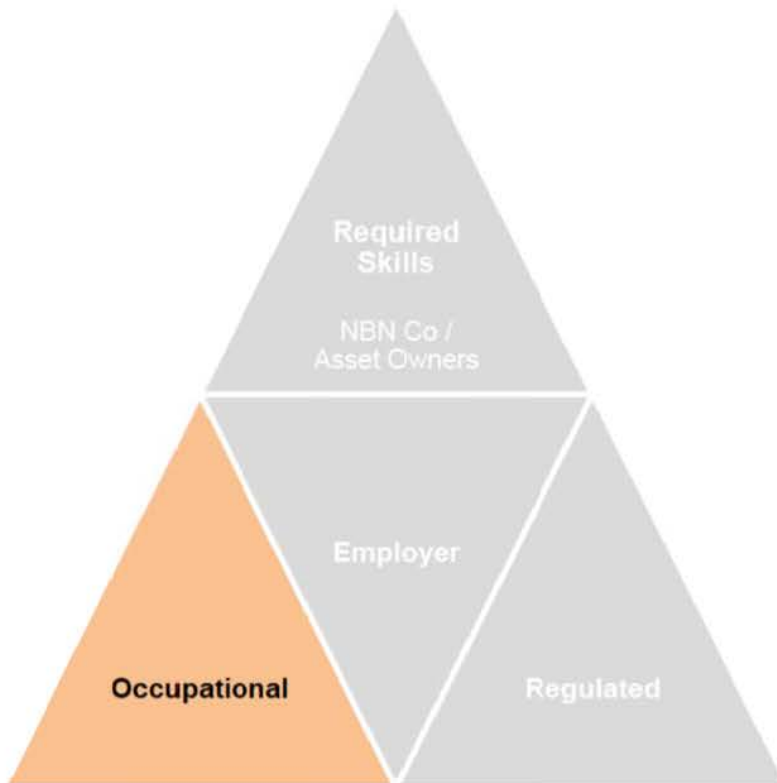
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# NBN Skills Pyramid

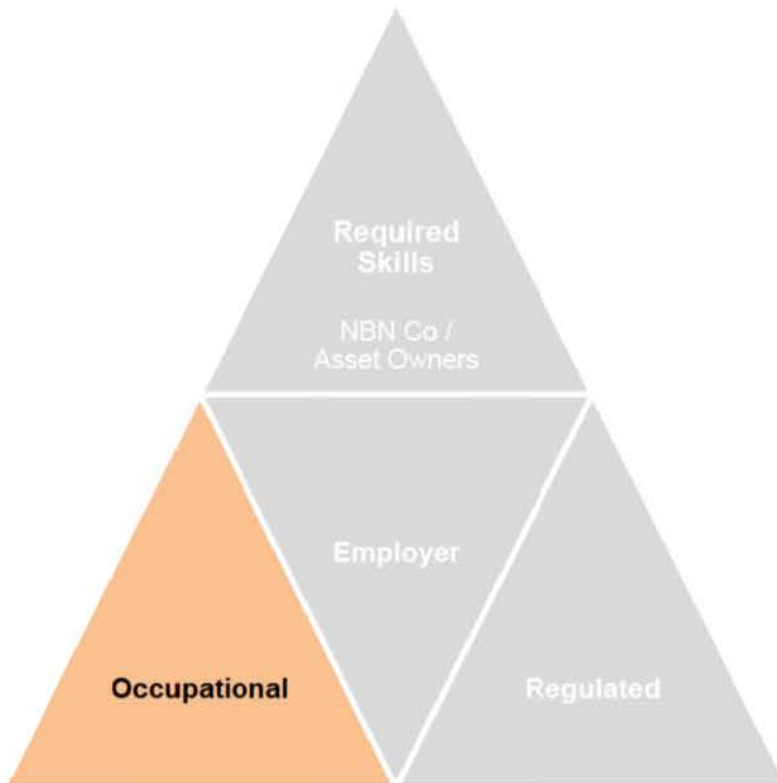


# Training Strategy – Occupational Training



- Identify **preferred training pathways** to provide guidance on telecommunications occupational training for new entrants &/or workers in transition including packaging of units of competence within qualifications/skills sets
- Work with **primary RTOs** identified through our recent survey process to develop regional cohorts of potential workers with preferred skills profiles

# Preferred Qualifications



**Preferred** qualifications for new entrants seeking a qualification to undertake for the following occupations:

- NBN Linesworker (eg; cable hauling)
- NBN Installer (eg; NTD installation)
- NBN Fibre splicer

Certificate II in Telecommunications (ICT20210)

Certificate III in Telecommunications (ICT30210)

The preferred training pathways with specific electives have been ratified with the construction companies engaged to build the NBN.

The level of the qualification will depend on the nature of the work being performed including the scope of work and the level of problem-solving and supervision.

# Preferred Training Pathway - Certificate II in Telecommunications (ICT20210)

## Electives

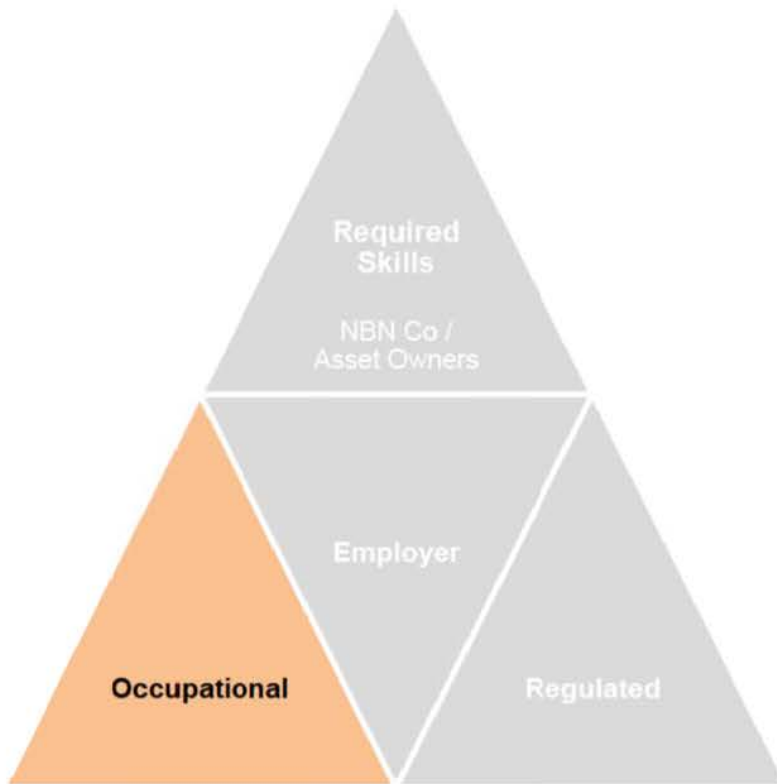
NBN Linesworker	NBN Installer
<ul style="list-style-type: none"> <li>ICTWOR2141A Work effectively in a telecommunications technology team</li> </ul>	
<ul style="list-style-type: none"> <li>ICTCBL2064A Haul underground cable</li> <li>ICTCBL2131A Install an above ground equipment enclosure</li> <li>ICTCBL2133A Construct underground telecommunications infrastructure</li> <li>ICTCBL2162A Install a cable lead in</li> </ul>	<ul style="list-style-type: none"> <li>ICTCBL2005A Install customer cable support systems</li> <li>ICTCBL2006A Place and secure customer cable</li> <li>ICTCBL2162A Install a cable lead in</li> <li>ICTBWN3090A Install lead-in module and cable for fibre to the premises *</li> </ul>
<ul style="list-style-type: none"> <li>Plus 1 other elective supporting skills formation of value to the national broadband rollout and consistent with the qualification's packaging rules. ICTOHS2153A Work safely near power infrastructure should be included where there is a likelihood of working near power infrastructure.</li> </ul>	
<p>* NBN Co will work with the industry and IBSA to update some components on this unit as part of a continuous improvement process. Note: CPCCOHS1001A – Work safely in the construction industry will be attained through the NBN Safety and Awareness course.</p>	

# Preferred Training Pathway - Certificate III in Telecommunications (ICT30210)

## Electives

NBN Linesworker / Installer	NBN Splicer
<ul style="list-style-type: none"> <li>ICTWOR3127A Supervise worksite activities</li> <li>ICTCBL3018A Install underground enclosures and conduit *</li> <li>ICTCBL3019A Install underground cable *</li> <li>ICTBWN3090A Install lead-in module and cable for fibre to the premises *</li> </ul>	<ul style="list-style-type: none"> <li>ICTBWN3088A Install optical fibre splitters in fibre distribution hubs</li> <li>ICTBWN3100A Work safely with live fibre to test and commission a fibre to the x installation</li> <li>ICTCBL2165A Splice and terminate optical fibre cable for carriers and service providers</li> </ul>
<ul style="list-style-type: none"> <li>Plus 2 other electives supporting skills formation of value to the national broadband rollout and consistent with the qualification's packaging rules. ICTOHS2153A Work safely near power infrastructure should be included where there is a likelihood of working near power infrastructure.</li> </ul> <p>* NBN Co will work with the industry and IBSA to update some components on this unit as part of a continuous improvement process. Note: CPCCOHS1001A – Work safely in the construction industry will be attained through the NBN Safety and Awareness course.</p>	

# Primary RTOs



## Relationship: Strategic

Identification of “primary RTOs” considered

- past and planned delivery activities,
- intended future training levels in key qualification/skills set areas,
- geographic footprint
- current and planned capacity and capability to deliver NBN Co’s preferred telecommunications training pathways.

# NBN Co Approved Training Courses (ATC)



Provide specific NBN Co skills **in addition to** occupational training and any other appropriate training that the principal contractor determines is necessary to ensure contractual compliance

The “catalogue” of approved training courses is overseen by an internal governance group (*Approved Training Reference Group*) which comprises representatives from technology, construction and operations areas

ATCs are targeted at workers that perform specific tasks and may have some components which potentially relate to units of competence

The first NBN ATC to be delivered was **NBN Safety and Awareness course** (NBNATC1201A).

Other ATCs targeted at NBN construction activities are in development, with delivery planned for 1<sup>st</sup> half of 2013.



# Approved Training Providers (ATPs)



**Relationship:** Contractual

Permission to market and deliver NBN Co Approved Training Courses and use NBN Co training materials

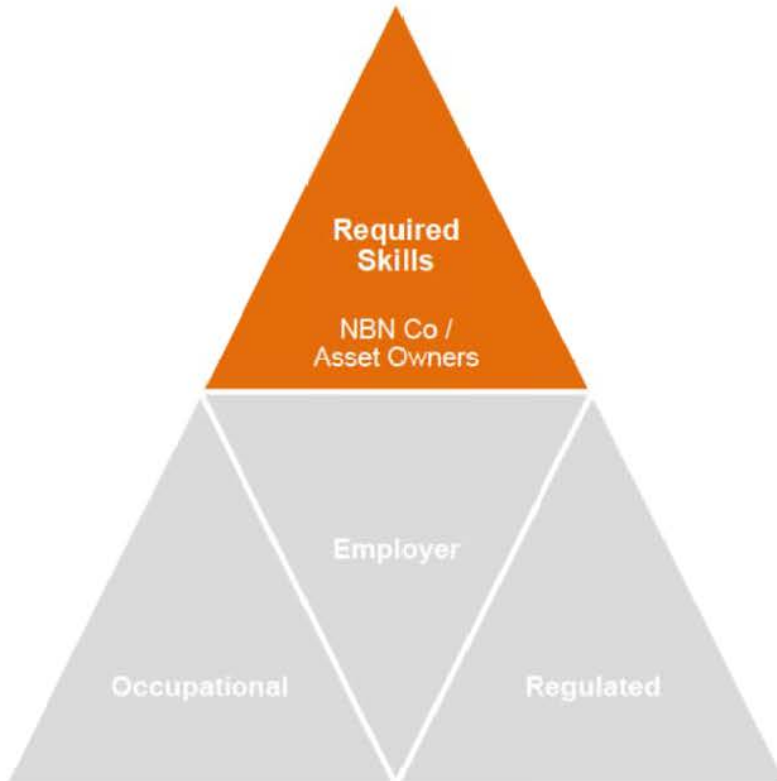
Evaluation of ATPs will consider:

- Overall experience
- Trainer qualifications and experience
- Training resources
- References

ATPs could include RTOs and non-RTOs (eg product vendors)

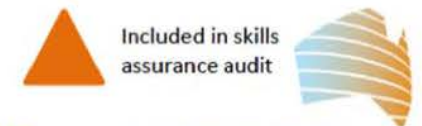
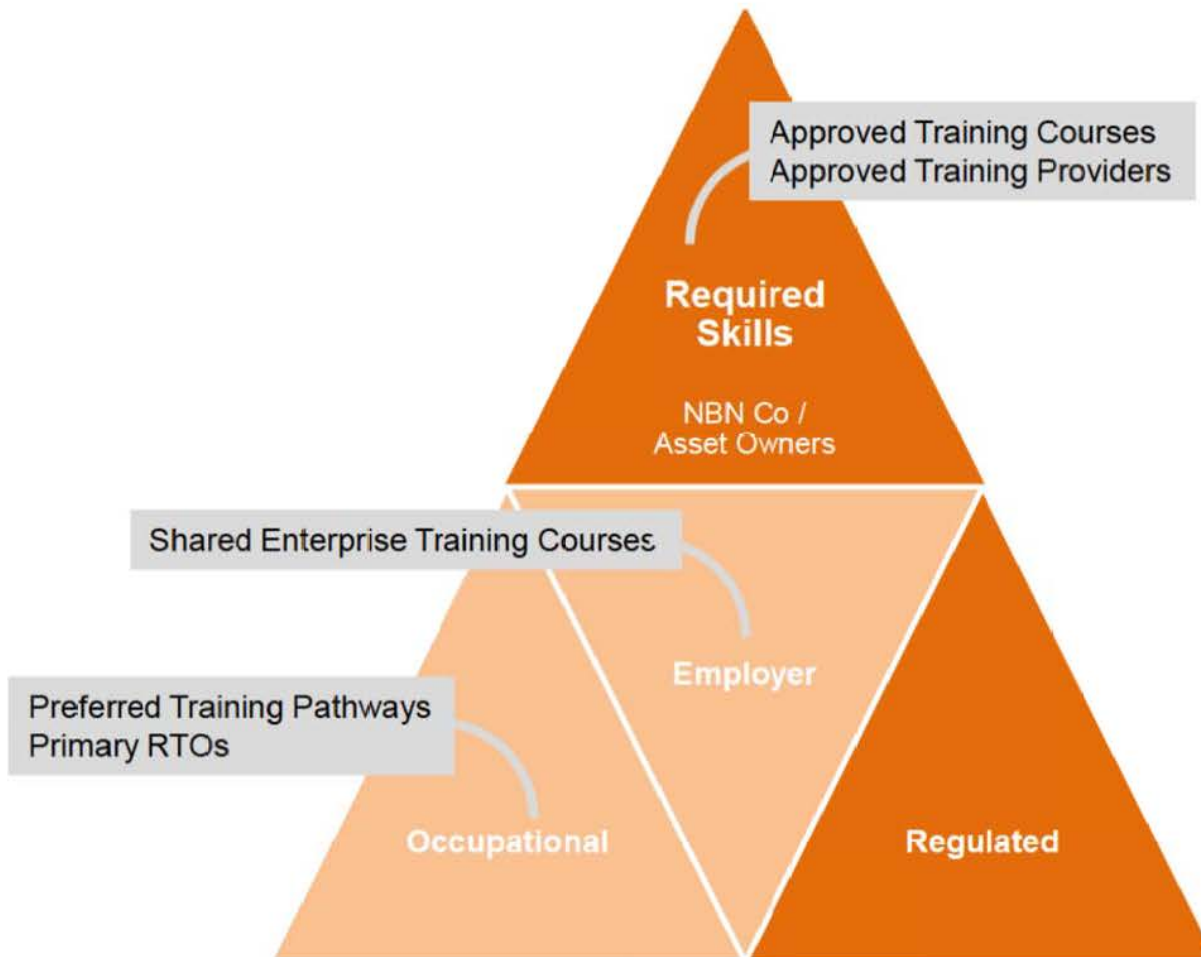
Important: "Primary RTOs" will not necessarily be Approved Training Providers

Obligations will include audit and reporting





# Workforce Development Strategy Strategic Responses



Included in skills  
assurance audit



**NBNCo**  
Bringing broadband to life

# Latest Initiatives

## Pilot marketing campaign & Training Grants

### Cert III Telecommunications – Splicing

- Ipswich
- Newcastle
- Darwin
- Geelong
- Mandurah

# Building the NBN Workforce

[nbnco.com.au/workforce](http://nbnco.com.au/workforce)