

NSQF QUALIFICATION FILE GUIDANCE

Version 6: Draft of 08 March 2016

NSDA Reference
To be added by NSDA

CONTACT DETAILS OF THE BODY SUBMITTING THE QUALIFICATION FILE

Name and address of submitting body:

Power Sector Skill Council, 2nd Floor, CBIP Building Malcha Marg,
Chanakyapuri, New Delhi

Name and contact details of individual dealing with the submission

Name: Vinod Behari

Position in the organisation: Chief Executive Officer

Address if different from above:

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List of documents submitted in support of the Qualifications File

1. Qualification Pack
2. List of companies and Industry associations participated in the development of these qualification packs (part of report)
3. List of QP/NOS validating companies.

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SUMMARY

Qualification Title	Engineer - Power Distribution
Qualification Code	PSS/Q7001
Nature and purpose of the qualification	Nature of the qualification - Qualification Pack (QP) The main purpose of the qualification - Oversee installation activities of power distribution system - Supervise power distribution system operation and maintenance activities
Body/bodies which will award the qualification	Power Sector Skill Council
Body which will accredit providers to offer courses leading to the qualification	Power Sector Skill Council
Body/bodies which will carry out assessment of learners	Navriti Tehcnologies Pvt Ltd, Bangalore Induslynk Training Service Pvt Ltd., Gurgaon Aspiring Minds Assessment Pvt Ltd., Gurgaon Manipal City and Builds Pvt Ltd. New Delhi Trendsetters Skill Assessors Pvt Ltd., Gurgaon Ace Assessments Pvt Ltd., New Delhi Assure Qualaity Management Certification Services Pvt Ltd. , Panchukula Prima Competencies Pvt Ltd., New Delhi
Occupation(s) to which the qualification gives access	Engineer Power Distribution (Level 6)
Licensing requirements	N/A
Level of the qualification in the NSQF	6
Anticipated volume of training/learning required to complete the qualification	350 Hours
Entry requirements and/or recommendations	Graduate Engineer (Electrical) and minimum age of 21 year

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Progression from the qualification	Executive Engineer (Level 7)		
Planned arrangements for the Recognition of Prior learning (RPL)	RPL arrangements and policies are under development. The guidelines should be ready in 2-3 months.		
International comparability where known	In the process of being developed		
Date of planned review of the qualification.	19/07/2018		
Formal structure of the qualification			
Title of component and identification code.	Mandatory/ Optional	Estimated size (learning hours)	Level
PSS/N7001 Oversee installation activities of power distribution system	Mandatory	174	6
PSS/N7002 Supervise power distribution system operation and maintenance activities	Mandatory	112	6
PSS/ N2001 Use basic health and safety practices at the workplace	Mandatory	32	6
PSS/N1336 Work effectively with others	Mandatory	24	6

Please attach any document giving further detail about the structure of the qualification - eg a Curriculum Document or a Qualification Pack.

Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

Qualification Pack is attached as Annexure 1

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SECTION 1 ASSESSMENT

Body/Bodies which will carry out assessment:

1. Navriti Tehcnologies Pvt Ltd, Bangalore
2. Induslynk Training Service Pvt Ltd., Gurgaon
3. Aspiring Minds Assessment Pvt Ltd., Gurgaon
4. Manipal City and Builds Pvt Ltd. New Delhi
5. Trendsetters Skill Assessors Pvt Ltd., Gurgaon
6. Ace Assessments Pvt Ltd., New Delhi
7. Assure Qualaity Management Certification Services Pvt Ltd. , Panchukula
8. Prima Competencies Pvt Ltd., New Delhi

How will RPL assessment be managed and who will carry it out?

RPL will be based on the same approved Qualification Pack and Assessment Criteria mentioned in the Qualification Pack.

Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, reliable and fair and show that these are in line with the requirements of the NSQF.

The emphasis is on 'learning-by-doing' and practical demonstration of skills and knowledge based on the performance criteria. The assessment papers are developed by Subject Matter Experts (SME) available with the Assessment Agency as per the performance and assessment criteria mentioned in the Qualification Pack. The assessments papers are also checked for the various outcome based parameters such as quality, time taken, precision, tools & equipment requirement etc. The assessment sets are then reviewed by PSSC official for consistency. The assessments are designed so as to assess maximum parts during the practical hands on work. The technical limitations at the training centres are taken care in theory and viva. Criteria such as use of lift to pick heavy objects or selection of fire extinguisher during a fire are also assessed under theory/viva.

The assessment agencies are instructed to hire assessors with integrity, reliability and fairness. Each assessor shall sign a document with its assessment agency by which they commit themselves to comply with the rules of confidentiality and conflict of interest, independence from commercial and other interests that would compromise impartiality of the assessments. The assessment agencies are instructed to Ideally have assessor with minimum 15 years industry experience as an ITI graduate / minimum 10 years' industry experience as diploma engineer and minimum 5 years' industry experience as graduate engineer.

The assessors selected by Assessment Agencies are scrutinized and made to undergo training and introduction to PSSC Assessment Framework, competency based assessments, assessors guide etc.

The assessors are provided with assessors guide developed by the Subject Matter Expert of the assessment agency as per the assessment framework. The assessment guides are developed to ensure the maximum possible consistency in the assessment by different assessors and elaborate

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on the following

- 1 Qualification Pack Structure
- 2 Guidance for the assessor to conduct theory, practical and viva assessments
- 3 Guidance for trainees to be given by assessor before the start of the assessments.
- 4 Guidance on assessments process, practical brief with steps of operations practical observation checklist and mark sheet
- 5 Viva guidance for uniformity and consistency across the batch.
- 6 Guidance on assessment evidence collection

The assessment results are backed by evidences collected by assessors.

- 1 The assessor needs to collect a copy of the attendance for the training done under the scheme. The attendance sheets are signed and stamped by the In charge /Head of the Training Centre.
- 2 The assessor needs to verify the authenticity of the candidate by checking the photo ID card issued by the institute as well as any one Photo ID card issued by the Central/Government. The same needs to be mentioned in the attendance sheet. In case of suspicion, the assessor should authenticate and cross verify trainee's credentials in the enrolment form.
- 3 The assessor needs to take a photograph of all the students along with the assessor standing in the middle and with the centre name/banner at the back as evidence.
- 4 The assessor needs to carry a camera to click photograph of the trainees working on the job and giving theory exam as evidence.
- 5 The assessor also needs to carry a photo ID card.
- 6 The assessor also needs to take the photographs as evidence from appropriate angles/sides of the final work piece/job submitted by the trainee. This evidence is signed by the trainee at the time of submission of the job piece.
- 7 The assessor needs to measure the dimensions and finish of the submitted job piece as per the tolerance or standards mentioned in the assessment guide.
- 8 The assessor will also check internal record of assignments, performance records and feedback provided to candidates.

The assessment agencies are instructed to hire assessors with integrity, reliability and fairness. Each assessor shall sign a document with its assessment agency by which they commit themselves to comply with the rules of confidentiality and conflict of interest, independence from commercial and other interests that would compromise impartiality of the assessments. This code of conduct is enclosed. The assessment agencies are instructed to Ideally have assessor with minimum 15 years industry experience as an ITI graduate / minimum 10 years' industry experience as diploma engineer and minimum 5 years' industry experience as graduate engineer.

Please attach any documents giving further information about assessment and/or RPL.
Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

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ASSESSMENT EVIDENCE

Complete a grid for each component as listed in “Formal structure of the the qualification” in the Summary.

NOTE: this grid can be replaced by any part of the qualification documentation which shows the same information - ie Learning Outcomes to be assessed, assessment criteria and the means of assessment.

CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role Engineer-Power Distribution

Qualification Pack PSS/Q7001

Sector Skill Council Power Sector Skill Council

Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC
3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below)
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criteria
5. To pass the Qualification Pack, every trainee should score a minimum of 70% in every NOS
6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack

Assessable Outcomes	Assessment Criteria for Outcomes	Marks Allocation			
		Total Marks	Out Of	Theory	Skills Practical
1. PSS/N7001 Oversee Installation activities of power distribution system	• supervise and ensure entire power distribution system from substation to last mile consumers	100	4	1	3
	• demonstrate knowledge of types of distribution system network - ring main system, radial system, interconnected system etc.		4	1	3

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<ul style="list-style-type: none"> manage load flow 	4	1	3
<ul style="list-style-type: none"> supervise the installation of key equipment in power distribution system and ensure all technical specifications are inline 	4	1	3
<ul style="list-style-type: none"> ensure voltage level using technology of different types of distribution system 	4	1	3
<ul style="list-style-type: none"> read and analyse schematic drawings, engineering drawings, single line diagrams, lay out plans etc. 	4	1	3
<ul style="list-style-type: none"> be aware of different types of transformers, poles, conductors and cables 	4	1	3
<ul style="list-style-type: none"> survey elements for creation of new service line connections 	4	1	3
<ul style="list-style-type: none"> review engineering drawings, layout plans, technical specification of equipment 	3	1	2
<ul style="list-style-type: none"> manage revenue across all processes in distribution chain from release of new connection to collection including meter installation, meter reading, bill generation, bill distribution etc. 	3	1	2
<ul style="list-style-type: none"> demonstrate knowledge of equipments installed in power system 	3	1	2
<ul style="list-style-type: none"> preparation of estimates and bill of quantities (BoQ) 	3	1	2
<ul style="list-style-type: none"> overviewing of procurement function (modes and types- turnkey, supply & services etc.) material planning and handling; store handling methods 	3	1	2
<ul style="list-style-type: none"> supervise route survey for O/H line, U/G lines and ROW, using best practises 	3	1	2
<ul style="list-style-type: none"> review all types of protection system and earthing in distribution network 	3	1	2
<ul style="list-style-type: none"> installation of transformer and associated equipment 	3	1	2
<ul style="list-style-type: none"> take decision of use and insallation of 1-phase and 3-phase metering system 	3	1	2
<ul style="list-style-type: none"> understand and appreciate Smart grid, AMR, AMI and SCADA implementation and GIS mapping 	3	1	2
<ul style="list-style-type: none"> supervise erection and commissioning of substation and line elements like different types of towers, O/H line, U/G cable, switchgear etc. 	3	1	2

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	<ul style="list-style-type: none"> supervise installation of protection system- surge protection device, over voltage protection etc. 		3	1	2
	<ul style="list-style-type: none"> coordinate and manage logistic related issues 		3	0	3
	<ul style="list-style-type: none"> understand and demonstrate knowledge of air insulated and gas insulated substation 		4	1	3
	<ul style="list-style-type: none"> supervise erection and commissioning of substation equipment 		3	1	2
	<ul style="list-style-type: none"> undertake installation of switchgear and control panel 		3	1	2
	<ul style="list-style-type: none"> supervise installation of Substation Automation System (SAS) 		3	1	2
	<ul style="list-style-type: none"> ensure protection system of all the plant equipment 		3	1	2
	<ul style="list-style-type: none"> supervise G.O. switch installation 		3	1	2
	<ul style="list-style-type: none"> ensure protection of distribution system equipment -transformer, switchgear etc. 		4	2	2
	<ul style="list-style-type: none"> ensure grounding and earthing system of all the plant and equipment 		3	1	2
	<ul style="list-style-type: none"> apply knowledge of circuit breaker, relay ,CT,PT and LA installation 		3	1	2
			100	30	70
2. PSS/N7002 Supervise power distribution system operation and maintenance activities	<ul style="list-style-type: none"> ensuring proper O&M of the distribution systems 	100	4	1	3
	<ul style="list-style-type: none"> ensuring proper protection and earthing of equipment for healthy operation 		4	1	3
	<ul style="list-style-type: none"> understanding of consumer categories, applicable tariffs 		5	2	3
	<ul style="list-style-type: none"> understanding of operation aspects of distribution substations and lines 		5	2	3
	<ul style="list-style-type: none"> prepare preventive and breakdown maintenance plan for distribution system 		4	1	3
	<ul style="list-style-type: none"> understanding of consumer management aspects and customer relationship management 		5	2	3
	<ul style="list-style-type: none"> understanding of load management, grid stability, frequency, load dispatch, feeder loading etc. 		4	1	3
	<ul style="list-style-type: none"> locate the conduit, cables & other underground system to perform maintenance work 		4	1	3

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<ul style="list-style-type: none"> performance monitoring of critical system such as RTU, Remote Metering Unit (RMU) and other automation system 	4	1	3
<ul style="list-style-type: none"> Understand tools and technologies available for conducting maintenance activities 	4	1	3
<ul style="list-style-type: none"> commercial operation- understanding of entire revenue management process viz meter reading, bill generation, bill distribution, revenue collection, arrear management, consumer management etc. 	4	1	3
<ul style="list-style-type: none"> Co-ordinate resources, mobilise teams, build teams, resolve interpersonal issues, manage logistics 	4	1	3
<ul style="list-style-type: none"> Create SOPs, schedules, maintenance schedules 	4	1	3
<ul style="list-style-type: none"> prepare estimates, bill of quantity for carrying out maintenance activity 	4	1	3
<ul style="list-style-type: none"> plan and supervise predictive, preventive, breakdown and routine maintenance for lines and substation equipment 	4	1	3
<ul style="list-style-type: none"> monitor problem and keep the manager informed about progress or any delays in resolving the problem 	4	1	3
<ul style="list-style-type: none"> testing of distribution transformer and other associated equipment 	3	1	2
<ul style="list-style-type: none"> Testing of earthing systems for distribution systems 	3	1	2
<ul style="list-style-type: none"> Fault location methods for distribution system lines, cables 	3	1	2
<ul style="list-style-type: none"> carry out repair and replacement of faulty/unhealthy equipment 	3	1	2
<ul style="list-style-type: none"> Troubleshooting of faulty system 	3	1	2
<ul style="list-style-type: none"> upgrade or modify the existing unhealthy equipment/system 	3	1	2
<ul style="list-style-type: none"> carry out general routine repair work 	3	1	2
<ul style="list-style-type: none"> technical change implementation in equipment/systems 	3	1	2
<ul style="list-style-type: none"> Co-ordinate resources, mobilise teams, build teams, resolve interpersonal issues, manage logistics 	3	1	2

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	<ul style="list-style-type: none"> • Create SOPs, schedules, maintenance schedules 		3	1	2
	<ul style="list-style-type: none"> • PPE: e.g. safety helmet, safety glove, safety shoe, climbing harness, lanyard and tool belt (when climbing), earth rod (discharge rod), safety rope ,ladder etc. 		3	1	2
			100	30	70
3. PSS/N2001 Use basic health and safety practices for power related work	<ul style="list-style-type: none"> • use protective clothing/equipment for specific tasks and work conditions 	100	2		2
	<ul style="list-style-type: none"> • state the name and location of people responsible for health and safety in the workplace 		3	1	2
	<ul style="list-style-type: none"> • state the names and location of documents that refer to health and safety in the workplace 		3	1	2
	<ul style="list-style-type: none"> • identify job-site hazardous work and state possible causes of risk or accident in the workplace 		2	1	1
	<ul style="list-style-type: none"> • follow electrical safe working procedures such as Tag out/Lock out and display PTW (Permit To Work), 		3	1	2
	<ul style="list-style-type: none"> • follow warning signs (danger, out of service, etc.) while working with electrical systems 		3	1	2
	<ul style="list-style-type: none"> • use standard safe working practices when working at heights, confined areas and trenches 		3	1	2
	<ul style="list-style-type: none"> • test any electrical equipment and system using insulated testing devices before touching them 		3	1	2
	<ul style="list-style-type: none"> • ensure positive isolation of electrical equipment & system as per given standards 		3	1	2
	<ul style="list-style-type: none"> • recognize any abnormalities in electrical equipment or system installed alarm annunciation and/or noticing parameters from gauge/ indicator installed 		3	1	2
	<ul style="list-style-type: none"> • carry out safe working practices while dealing with hazards to ensure the safety of self and others 		3	1	2
	<ul style="list-style-type: none"> • state methods of accident prevention in the work environment of the job role 		3	1	2
	<ul style="list-style-type: none"> • state location of general health and safety equipment in the workplace 		3	1	2
<ul style="list-style-type: none"> • inspect for faults, set up and safety use of scaffolds and elevated platforms and ladder 	3	1	2		

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<ul style="list-style-type: none"> lift, carry and transport heavy objects & tools safely using correct procedures from storage to workplace and vice versa 	3	1	2
<ul style="list-style-type: none"> inspect Grid station and its equipment routinely for any signs of oil and water leakage 	3	1	2
<ul style="list-style-type: none"> store flammable materials and machine lubricating oil safely and correctly 	3	1	2
<ul style="list-style-type: none"> check that the emission and pollution control devices are working properly in line with environmental policy standards 	3	1	2
<ul style="list-style-type: none"> apply good housekeeping practices at all times 	2		2
<ul style="list-style-type: none"> identify common hazard signs displayed in various areas 	3	1	2
<ul style="list-style-type: none"> retrieve and/or point out documents that refer to health and safety in the workplace 	3	1	2
<ul style="list-style-type: none"> inform relevant authorities about any abnormal situation/behavior of any equipment/system promptly 	3	1	2
<ul style="list-style-type: none"> use the various appropriate fire extinguishers on different types of fires correctly 	3	1	2
<ul style="list-style-type: none"> distinguish types of fire 	3	1	2
<ul style="list-style-type: none"> demonstrate rescue techniques applied during fire hazard 	3	1	2
<ul style="list-style-type: none"> demonstrate good housekeeping in order to prevent fire hazards 	2		2
<ul style="list-style-type: none"> demonstrate the correct use of a fire extinguisher 	3	1	2
<ul style="list-style-type: none"> demonstrate how to free a person from electrocution 	3	1	2
<ul style="list-style-type: none"> administer appropriate first aid to victims were required e.g. in case of bleeding, burns, choking, electric shock, poisoning etc. 	3	1	2
<ul style="list-style-type: none"> demonstrate basic techniques of bandaging 	3	1	2
<ul style="list-style-type: none"> respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments 	3	1	2
<ul style="list-style-type: none"> perform and organize loss minimization or rescue activity during an accident in real or simulated environments 	2	0	2

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	<ul style="list-style-type: none"> administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock, before the arrival of emergency services in real or simulated cases 		3	1	2
	<ul style="list-style-type: none"> demonstrate the artificial respiration and the CPR Process 		3	1	2
	<ul style="list-style-type: none"> participate in emergency procedures Emergency procedures: raising alarm, safe/efficient, evacuation, correct means of escape, correct assembly point, roll call, correct return to work 		1	0	1
	<ul style="list-style-type: none"> complete a written accident/incident report or dictate a report to another person, and send report to person responsible 		1	0	1
	<ul style="list-style-type: none"> demonstrate correct method to move injured people and others during an emergency 		1	0	1
			100	30	70
4. PSS/N1336 Work effectively with others	<ul style="list-style-type: none"> accurately receive information and instructions from the supervisor and fellow workers, getting clarification where required 	100	10	3	7
	<ul style="list-style-type: none"> accurately pass on information to authorized persons who require it and within agreed timescale and confirm its receipt 		10	3	7
	<ul style="list-style-type: none"> give information to others clearly, at a pace and in a manner that helps them to understand 		10	3	7
	<ul style="list-style-type: none"> display helpful behavior by assisting others in performing tasks in a positive manner, where required and possible 		10	3	7
	<ul style="list-style-type: none"> consult with and assist others to maximize effectiveness and efficiency in carrying out tasks 		10	3	7
	<ul style="list-style-type: none"> display appropriate communication etiquette while working 		10	3	7
	<ul style="list-style-type: none"> display active listening skills while interacting with others at work 		10	3	7
	<ul style="list-style-type: none"> use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism 		10	3	7
	<ul style="list-style-type: none"> demonstrate responsible and disciplined behaviors at the workplace 		10	3	7

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	<ul style="list-style-type: none">escalate grievances and problems to appropriate authority as per procedure to resolve them and avoid conflict		10	3	7
			100	30	70

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SECTION 2 EVIDENCE OF LEVEL

OPTION B

Title/Name of qualification/component: Engineer -Power Distribution			Level: 6
NSQF Domain	Key requirements of the job role	How the job role relates to the NSQF level descriptors	NSQF Level
Process	Oversee installation, operation & maintenance, testing & inspection of grid substation, distribution transformer, distribution network, O/H line, U/G cabling, GIS, SCADA, automation system, smart grid, metering, billing and collection etc. testing and inspection on pre and post commissioning. Work is performed indoor as well as outdoors in all weather conditions. Work requires the ability to perform engineering and co-ordination activities as and when required. Periodic night-time work also required.	Job does not requires well developed skill, with clear choice of procedures in familiar context. Hence, it cannot be pegged as a Level 5 This role demands wide range of specialised technical skill, clarity of knowledge and practice in broad range of activity involving standard non-standard practices and ability to perform engineering and co-ordination activities as and when required. Hence it qualifies as Level 6 Job role	6
Professional knowledge	<ul style="list-style-type: none"> network layout, schematic and design drawing of substation technical specification of distribution system equipment policy and regulatory regime in the sector design of distribution network based on prevailing planning and policy guidelines load flow studies, sag and tension calculation, transient studies, vibration analysis, wind pressure analysis, short circuit studies etc. various type of equipment protection system 	<p>Job Holder expected to have factual and theoretical knowledge in broad contexts within a field of work or study, The role qualifies for Level 6.</p> <p>As the job holder is not expected to have ONLY Knowledge of facts, principles, processes and general concepts, in a field of work or study and design of distribution network based on prevailing planning and policy guidelines. It cannot be pegged at Level 5</p>	6

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NSQF Domain	Key requirements of the job role	How the job role relates to the NSQF level descriptors	NSQF Level
	<ul style="list-style-type: none"> • ratings and specifications of line, transformer, cables, fuses, switches and wires • smart grid, AMR,AMI and automation system • handling of all machineries, equipment's & vehicles • use of appropriate judgment and initiative pertaining to work methods and tools 		
Professional skill	<ul style="list-style-type: none"> • follow organization rule-based decision making process • take decisions with systematic course of actions and/or response • demonstrate leadership skill • understand importance of proper documentation • planning and organization of tasks to meet deadlines • build customer relationships and use customer centric approach • seek and comprehend operation related inputs for clarification • find ways of modifying difficult operating stages to make it operation friendly • apply domain information to set and define operation parameters that ensures economy and quality of the product • critically evaluate operation parameters in relation to product features intended • develop a holistic and comprehensive 	S/he should have a range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study and, apply domain information to set and define operation parameters that ensures economy and quality of the product it is best suited for Level 6	6

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Title/Name of qualification/component: Engineer -Power Distribution			Level: 6
NSQF Domain	Key requirements of the job role	How the job role relates to the NSQF level descriptors	NSQF Level
	profile of products based on segregated discrete process stages		
Core skill	<ul style="list-style-type: none"> • supervise and ensure entire power distribution system from substation to last mile consumers • demonstrate knowledge of types of distribution system network - ring main system, radial system, interconnected system etc. • manage load flow • supervise the installation of key equipment in power distribution system and ensure all technical specifications are inline • ensure voltage level using technology of different types of distribution system • read and analyse schematic drawings, engineering drawings, single line diagrams, lay out plans etc. • be aware of different types of transformers, poles, conductors and cables • survey elements for creation of new service line connections • review engineering drawings, layout plans, technical specification of equipment • manage revenue across all processes in distribution chain from release of new connection to collection including meter 	S/he should be Reasonably good in mathematical calculation, understanding of social, political and, reasonably good in data collecting organising information, supervise the installation of key equipment in power distribution system and ensure all technical specifications are inline and logical communication	6

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NSQF Domain	Key requirements of the job role	How the job role relates to the NSQF level descriptors	NSQF Level
	<p>installation, meter reading, bill generation, bill distribution etc.</p> <ul style="list-style-type: none"> • demonstrate knowledge of equipments installed in power system • preparation of estimates and bill of quantities (BoQ) • overviewing of procurement function (modes and types- turnkey, supply & services etc.) material planning and handling; store handling methods • supervise route survey for O/H line, U/G lines and ROW, using best practises • review all types of protection system and earthing in distribution network • installation of transformer and associated equipment • take decision of use and insallation of 1-phase and 3-phase metering system • understand and appreciate Smart grid, AMR, AMI and SCADA implementation and GIS mapping • supervise erection and commissioning of substation and line elements like different types of towers, O/H line, U/G cable, switchgear etc. • supervise installation of protection system- surge protection device, over voltage protection etc. • coordinate and manage logistic related 		

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Title/Name of qualification/component: Engineer -Power Distribution		Level: 6	
NSQF Domain	Key requirements of the job role	How the job role relates to the NSQF level descriptors	NSQF Level
	<p>issues</p> <ul style="list-style-type: none"> • understand and demonstrate knowledge of air insulated and gas insulated substation • supervise erection and commissioning of substation equipment • undertake installation of switchgear and control panel • supervise installation of Substation Automation System (SAS) • ensure protection system of all the plant equipment • supervise G.O. switch installation • ensure protection of distribution system equipment -transformer, switchgear etc. • ensure grounding and earthing system of all the plant and equipment • apply knowledge of circuit breaker, relay ,CT,PT and LA installation • ensure proper O&M of the distribution systems • ensure proper protection and earthing of equipment for healthy operation • understand consumer categories and applicable tariffs • understand operation aspects of distribution substations and lines • prepare preventive and breakdown maintenance plan for distribution system • understand consumer management aspects 		

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Title/Name of qualification/component: Engineer -Power Distribution		Level: 6	
NSQF Domain	Key requirements of the job role	How the job role relates to the NSQF level descriptors	NSQF Level
	<p>and customer relationship management</p> <ul style="list-style-type: none"> • understand load management, grid stability, frequency, load dispatch, feeder loading etc. • locate the conduit, cables & other underground system to perform maintenance work • understand performance monitoring of critical system such as RTU, Remote Metering Unit (RMU) and other automation system • understand tools and technologies available for conducting maintenance activities • have an understanding of commercial operation of the entire revenue management process viz meter reading, bill generation, bill distribution, revenue collection, arrear management, consumer management etc. • coordinate resources, mobilize teams, build teams, resolve interpersonal issues, manage logistics • create SOPs, schedules, maintenance schedules • prepare estimates, bill of quantity for carrying out maintenance activity • plan and supervise predictive, preventive, breakdown and routine maintenance for 		

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Title/Name of qualification/component: Engineer -Power Distribution			Level: 6
NSQF Domain	Key requirements of the job role	How the job role relates to the NSQF level descriptors	NSQF Level
	<p>lines and substation equipment</p> <ul style="list-style-type: none"> • monitor problem and keep the manager informed about progress or any • testing of distribution transformers and other associated equipments • testing of earthing systems for distribution systems • fault location methods for distribution system lines, cables • carrying out repair and replacement of faulty/ unhealthy equipment • troubleshooting of faulty system • upgrading or modifying the existing unhealthy equipment/system • carrying out general routine repair work • technical change implementation in equipment/systems • coordinating resources, mobilize teams, build teams, resolve interpersonal issues, manage logistics • creating SOPs, schedules, maintenance schedules 		
Responsibility	Responsibility for own work and learning and full responsibility for other's works and learning	Responsibility for own work and learning and full responsibility for other's works and learning and coordinating resources, mobilize teams, build teams, resolve interpersonal issues, manage logistics	6

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SECTION 3

EVIDENCE OF NEED

What evidence is there that the qualification is needed?

While collecting data from secondary sources (Details mentioned in the attached skill gap report) and industry representatives, which was collected with respect to roles for which qualification packs development, was to be prioritized. This was largely based on dominant roles in the sector, volume of people required, quantitative and qualitative shortfall which the Industry feels they face. Governing council of PSSC gave final approval and endorsement for the same. Estimated Demand for the qualification:21,077

What is the estimated uptake of this qualification and what is the basis of this estimate?

Internal Skills Gap analysis Reports for industry demand and secondary research data, though these do not lend to accurate demand projection. These include CEA and 12th plan reports.

- Feedback from industry for demand though again sample size may not lend to accurate figures
- Training duration, and current and potential training capacity envisaged

An LMIS development initiative is being put in place to be more precise regarding the demand and supply

An RFP is being issued for a more detailed occupational map and skills gap study and will be used to further provide information regarding the same.

What steps were taken to ensure that the qualification(s) does (do) not duplicate already existing or planned qualifications in the NSQF?

- NSDC list of Approved and Under-Development QPs was checked prior to commissioning the work
- NSDC QRC team also confirmed the same

What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated?

- Agencies have been appointed by the SSC to interact with training providers to gather feedback in implementation.
- Monitoring of results of assessments
- Employer feedback will be sought post-placement
- A formal review is scheduled in two year time (2017)

Please attach any documents giving further information about any of the topics above.

Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

- Report to the Governing Council
- Minutes of the meeting of GC meetings
- Power Sector Skill Council Skill gap report

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SECTION 4 EVIDENCE OF PROGRESSION

What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector?

- Vertical mobility have been articulated, horizontal mobility will be articulated once full occupational mapping of the sector is completed.
- Vertical Mobility to Executive Engineer

Please attach any documents giving further information about any of the topics above. Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

Detailed Occupation Mapping for Distribution Subsector

