

Tim Davin, Director – Policy, IPENZ

PO Box 12241, Wellington 6144

Email: [dir-pp@ipenz.org.nz](mailto:dir-pp@ipenz.org.nz)

Phone: 04 473 2027

Fax: 04 474 8933

# REVIEW OF ESSENTIAL SKILLS IN DEMAND LISTS – SECOND 2009 REVIEW

SUBMISSION TO THE DEPARTMENT OF LABOUR

15 JULY 2009

---

## BACKGROUND TO IPENZ

The Institution of Professional Engineers New Zealand (IPENZ) is the lead national professional body representing the engineering profession in New Zealand. It has approximately 10,000 Members, including a cross-section from engineering students, to practising engineers, to senior Members in positions of responsibility in business. IPENZ is non-aligned and seeks to contribute to the community in matters of national interest giving a learned view on important issues, independent of any commercial interest.

## EXECUTIVE SUMMARY

Engineering occupational groups are projected to continue to grow above the average rate for all occupations. In spite of the New Zealand tertiary output of engineering graduates increasing, inwards migration will continue to have an important role in ensuring New Zealand has sufficient engineers.

The present financial crisis has led to a temporary slowing of outwards migration but this is expected to return to previous levels, reinforcing the need to be able to bring in international standard engineers at all levels of competence, from professional engineers to technicians and also some tradespeople.

This submission recommends that those engineering occupations on the Essential Skills in Demand Lists remain on those lists.

## THIS SUBMISSION

This submission follows the format of the Submission Questionnaire, which was available online at [www.immigration.govt.nz/NR/ronlyres/8DB6C559-1DF7-4138-85D4-2B8CB1F96575/0/Second2009ESIDSubmissionFormFINAL.DOC](http://www.immigration.govt.nz/NR/ronlyres/8DB6C559-1DF7-4138-85D4-2B8CB1F96575/0/Second2009ESIDSubmissionFormFINAL.DOC)

This submission refers in places to the following two reports which have recently been completed and relate to the supply of and demand for engineers.

1. Ministry of Education, 2009, *Advanced trade, technical and professional qualifications: Trends in supply*, Ministry of Education, Wellington. This report is available at [www.educationcounts.govt.nz/publications/tertiary\\_education/47719](http://www.educationcounts.govt.nz/publications/tertiary_education/47719)
2. Department of Labour, 2009, *Engineers in the New Zealand Labour Market*, Department of Labour, Wellington. IPENZ and ACENZ (the Association of Consulting Engineers) worked with collaboration with the Department of Labour in preparing this report. This report is available from: <http://dol.govt.nz/services/LMI/tools/skillsinsight/ipenz/index.asp>

## **SUBMISSION**

### **1. Your industry**

#### **1a) Which industry does this submission represent?**

This submission represents the views of IPENZ and its Members in New Zealand and abroad.

**Please describe the process used to ensure the submission reflects the shared views of your industry.**

Prior to the preparation of this submission, IPENZ contacted its Members and asked for those who had an interest in this topic to come forward. With the assistance of these Members this submission was prepared. The draft submission was available in the Members' Area of the IPENZ web site, which enabled all IPENZ Members to review the submission and provide comments or feedback if they wished to.

#### **1b) Who should the Department contact if more detail is required?**

#### **1c) Contact details. Please include phone, fax, email and postal address.**

Please contact Tim Davin whose contact details are at the top of page 1 of this submission.

#### **1d) Who are the key stakeholders? eg government agencies, training organisations, unions, industry bodies, registration bodies, employer groups**

IPENZ represents a diverse group of engineers with over 9,000 IPENZ Members being employed by local authorities, government departments, consultancies, State Owned Enterprises and private companies.

### **2. Occupations**

#### **2a) State the occupation and ANZSCO code at the 6 digit level.**

Of the occupations being reviewed, this submission relates to the following occupations:

133111 - Construction Project Manager

231212 - Ship's Engineer

232212 - Surveyor

233111 - 233999 - Engineering Professionals

233611 - Mining Engineer

233612 - Petroleum Engineer

263311, 263312 - Telecommunications Engineering Professionals

312211 - Civil Engineering Draughtsperson

312212 - Civil Engineering Technician

312512 - Mechanical Engineering Technician

321214 - Small Engine Mechanic

399916 - Plastics Technician/Engineer

**2b) Is it a sub-group within this occupation that is in shortage?**

Yes

No. Go to 2d

**2c) Define the subgroup that is in shortage**

Page 15 of the Ministry of Education's report *Advanced trade, technical and professional qualifications* presents supply and demand of engineers in narrow fields and by level of qualification.

This report shows that:

- Manufacturing, process and resource engineering occupations (ie 233611 - Mining Engineer and 399916 - Plastics Technician/Engineer) have shortages of workers with degree level qualifications.
- Automotive, mechanical and industrial engineering occupations (ie 312512 - Mechanical Engineering Technician, 233612 - Petroleum Engineer, 321214 - Small Engine Mechanic) have shortages of workers with Level 4 certificate and diploma level qualifications.
- Civil and geomatic engineering occupations (ie 312211 - Civil Engineering Draughtsperson, 232212 - Surveyor, 312212 - Civil Engineering Technician) have shortages of workers at all levels of qualification.
- Electrical and electronic engineering occupations (ie 263311, 263312 - Telecommunications Engineering Professionals) have shortages of workers with diploma and degree level qualifications.
- Maritime engineering occupations (ie 231212 - Ship's Engineer) have shortages of workers with Level 4 certificate level qualifications.

**2d) Is the occupation currently on the ISSL or LTSSL?**

ISSL

LTSSL

Neither.

**2e) For the occupation, do you want to:**

Change lists

Change details

Remove from a list.

Retain the current listing.

**2f) To have an occupation removed from a list please provide detailed evidence on why the occupation is no longer in shortage.**

Not applicable.

**3. Qualifications and experience**

**3a) What qualifications and/or level of experience are required to work in New Zealand?**

The level of qualification and/or experience required depends on the occupation and level in that occupation. For technician-level roles, a Level 5 certificate or a Level 6 diploma is required. For professional engineer roles a degree level qualification is usually required.

**3b) Are there any additional skills that are required? If so, please specify.**

Engineers require the following skills:

Submission to DOL - Essential Skills list- final to send

- internationally benchmarked qualifications
- good communication skills in the English language, including technical jargon in the English language – this is particularly important for those migrating to New Zealand from other countries
- an understanding of New Zealand institutions, form of government, relevant standards, legislation and codes of practice
- an appreciation of the culture and values prevalent in New Zealand, especially with regard to human rights and intolerance of corruption in all forms.

#### 4. Nature of the shortage

4a) Which list are you requesting that the occupation be added to/ retained on?

Immediate Skill Shortage List (ISSL)       Long Term Skill Shortage List (LTSSL)

4b) The occupational shortage is due to:

The shortages of engineers are caused by a number of factors, including:

- the growth of the engineering field and the consequential increase in demand for engineers
- emigration for various reasons, including work experience opportunities and higher remuneration packages overseas
- natural attrition (including the retirement of engineers)
- insufficient supply of engineers due to personal career choices.

4c) Provide detailed evidence supporting your response in 4b).

Please refer to page 15 of the Ministry of Education's report *Advanced trade, technical and professional qualifications*.

4d) Is the shortage confined to a particular region/s, or is it nationwide?

Describe the extent of the shortage in each region.

Auckland/Upper North Island

Waikato/Bay of Plenty

Central North Island (including Taranaki & Manawatu) Wellington

Canterbury/Upper South Island

Otago/Southland

OR

Nationwide

IPENZ considers the shortages a nationwide issue. Page 29 of the Department of Labour's report, *Engineers in the New Zealand Labour Market*, forecasts that New Zealand will need an additional 6,300 engineers by 2013.

#### 5. Training and industry initiatives

**5a) What steps are being taken by the industry and employers to address this shortage in the short-term? Include examples of training and industry initiatives.**

To fill short-term shortages there has been recruitment of engineers from the United Kingdom and Australia.

**5b) If applicable:**

**What steps are being taken by the industry and employers to address this long-term skill shortage? Include examples of training and industry initiatives.**

IPENZ, in collaboration with other professional bodies and business partners, runs the Futureintech programme. Futureintech aims to encourage more young people to consider a career in the technology, engineering and science fields. The programme brings school students into contact with young science and engineering professionals. The programme is also a source of useful resources, which are available via its web site. For more information on Futureintech please go to [www.futureintech.org.nz](http://www.futureintech.org.nz)

In addition, IPENZ, along with the Heads of Engineering at the eight providers of Bachelor of Engineering degrees, the Heads of Engineering in seven polytechnics, and the eight relevant industry training organisations, is delivering the National Engineering Education Plan Project. The project aims to develop a coherent national plan to ensure that the right types of graduate are produced in sufficient numbers to meet New Zealand's needs. This should help ensure engineering is seen as a desirable career and encourage more people into the profession. The project has the following five parts.

1. Career progression models have been developed for graduates of technician, technologist and professional engineer qualifications and for people with trades qualifications. Both models show progression through technical routes and supervisory/managerial routes.
2. The Department of Labour/IPENZ/ACENZ report *Engineers in the New Zealand Labour Market*.
3. Work is underway to review the qualifications for the professional engineers, technologists and technicians:
  - o international debate is occurring about the base qualification for professional registration being a Masters in Engineering – consultation is occurring nationally with industry and universities providing the four-year Bachelor of Engineering
  - o providers of the Bachelor of Engineering Technology are working more closely together to develop common entry advice and clearer pathways to the degree
  - o the institutes of technology and polytechnics and relevant industry training organisations are jointly exploring the possibility of a single diploma system.
4. The Ministry of Education is reviewing the subject groupings in the school technology curriculum for Years 11–13 to provide clearer pathways into engineering and related careers.
5. The factors affecting the success of minority groups in engineering (women, Māori, Pasifika) will be studied.

A further step to addressing the long-term skills shortage is the reinstatement of engineering cadet schemes, particularly in the field of civil engineering.

**6. Registration in New Zealand**

**6a) Does the occupation require registration in New Zealand?**

Yes                       No, go to 7a

Registration is not compulsory for the occupations this submission covers. However, New Zealand does have several voluntary quality marks and each of these has a register associated with it to show those engineers who are competent.

For professional engineers, relevant quality marks are Chartered Professional Engineer (CPEng), Professional Member of IPENZ (MIPENZ) and International Professional Engineer (IntPE). To be able to use these quality marks the engineer needs to demonstrate competence to a panel of assessors. In the case of CPEng and IntPE, reassessment of competence is required at least every five years. Regulators are increasingly using the CPEng quality mark as a benchmark for engineers undertaking certain types of engineering work.

For engineering technologists and engineering technicians, the relevant quality marks are Engineering Technology Practitioner (ETPract), International Engineering Technologist (IntET) and Certified Engineering Technician (CertETn). To be able to use these quality marks the engineering technologist or technician has to demonstrate competence and be reassessed at least every five years.

For more information in relation to registers please go to the IPENZ web site: [www.ipenz.org.nz/IPENZ/finding/default.cfm](http://www.ipenz.org.nz/IPENZ/finding/default.cfm)

**6b) What is the registration requirement in New Zealand?**

As noted, registration is not required but is used to show competence.

**7. Appropriate employment terms and conditions**

IPENZ has no comment on this question.

**7a) Generally, describe the policies and practices your organisation or the organisations this submission represents, have in place to ensure the industry meets New Zealand employment legislation.**

IPENZ has no comment on this question.

**7b) Provide detailed information on wage ranges applicable to this occupation.**

IPENZ undertakes annual remuneration surveys of its Members. The base salary of engineers varies, depending on a number of factors including age, experience, qualification, specialism, location and type of employer.

The latest remuneration survey was undertaken in mid 2008. That survey shows that the median base salaries begin at \$50,000 for those aged up to 25 years and rise to \$90,000 for engineers aged 56 to 60 years of age.

In addition to base salaries, some engineers receive performance payments and other benefits. Our latest survey shows that median total packages begin at \$51,750 for engineers aged up to 25 years of age and rise to \$123,000 for engineers aged 56 to 60 years.

IPENZ is happy to provide further information if required.

**7c) Provide information on employment conditions which are applicable to this occupation (e.g. working hours, perks).**

IPENZ does not have information in relation to the working hours or perks of engineers.

## **CONCLUSION**

IPENZ appreciates the opportunity to make this submission and is able to provide further clarification if required.

Tim Davin

Director – Policy