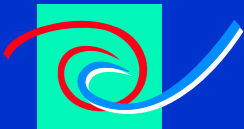




Supported by the European Commission  
through the EC – ASEAN Energy Facility



# Vocational Technical Training for Cambodia and Laos Rural Electrification SMEs (VTCL)



Needs assessment

Tuan Nguyen, IED

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## Objectives of needs assessment

- Why is curriculum is needed?
- What is the subjects
- What do the target groups know and their skills?
- What is the context
- Description of the problem, the target group, the context, the goal and the subject matters...



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## Survey design

IED has designed a questionnaire with 48 questions grouped into 5 themes

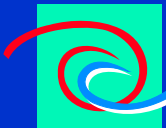
- General information
- Education background
- Technical & professional background
- Training needs
- Specific questions

### Cambodia

- Conducted between Dec 05 – Jan 06, by phone & interview
- Sample of 135 persons from REE and students

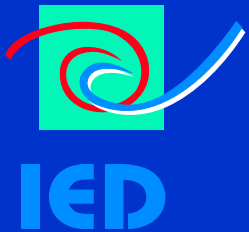
### Laos

- Conducted between Dec 05 – Jan 06, by phone & interview
- Sample of 35 person from Energy Services Providers and students



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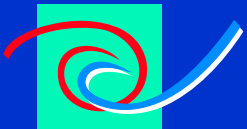
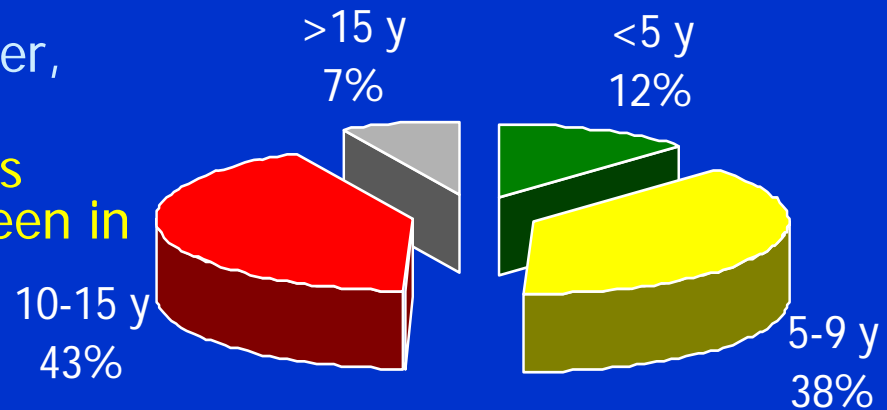
**REE**



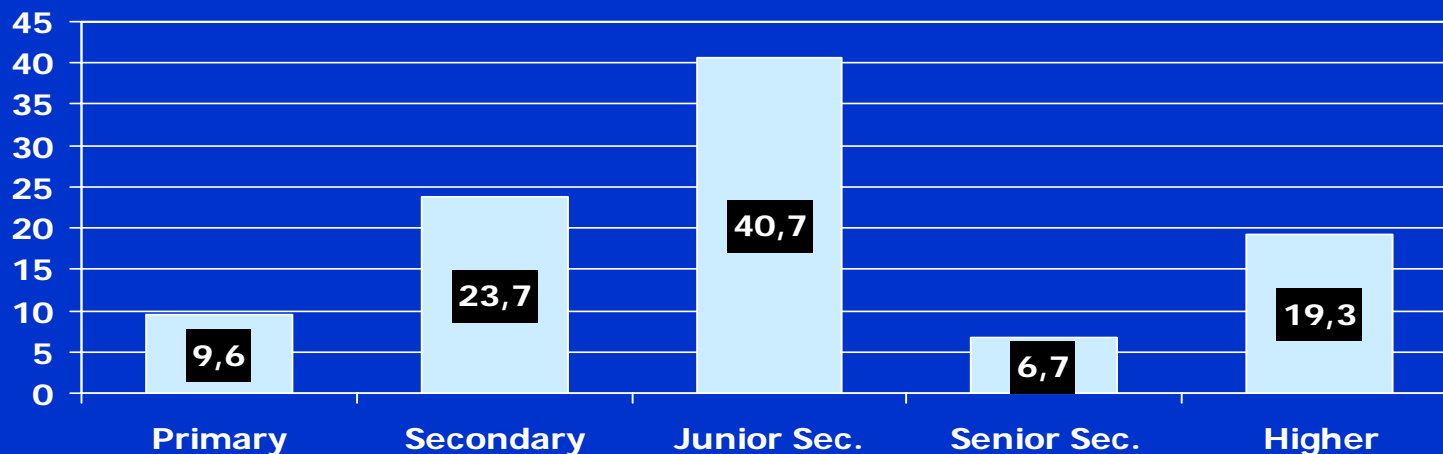
# Cambodian sample's statistics

- ✓ Age : most of them between 30-50 years olds (70,4%)
- ✓ The majority is men (85,2%)
- ✓ Almost all of them are the owner or student
- ✓ They came to this business from various social classes : farmer, battery charging, police, nurse, teacher, driver, businessman, student, civil officer, ice maker, seller, sugar producer, air-conditionner, karaoke shopkeeper, technicians...
- ✓ They are not newcomers in this business : 43% of them has been in the business 10-15 years

Number of years in this business

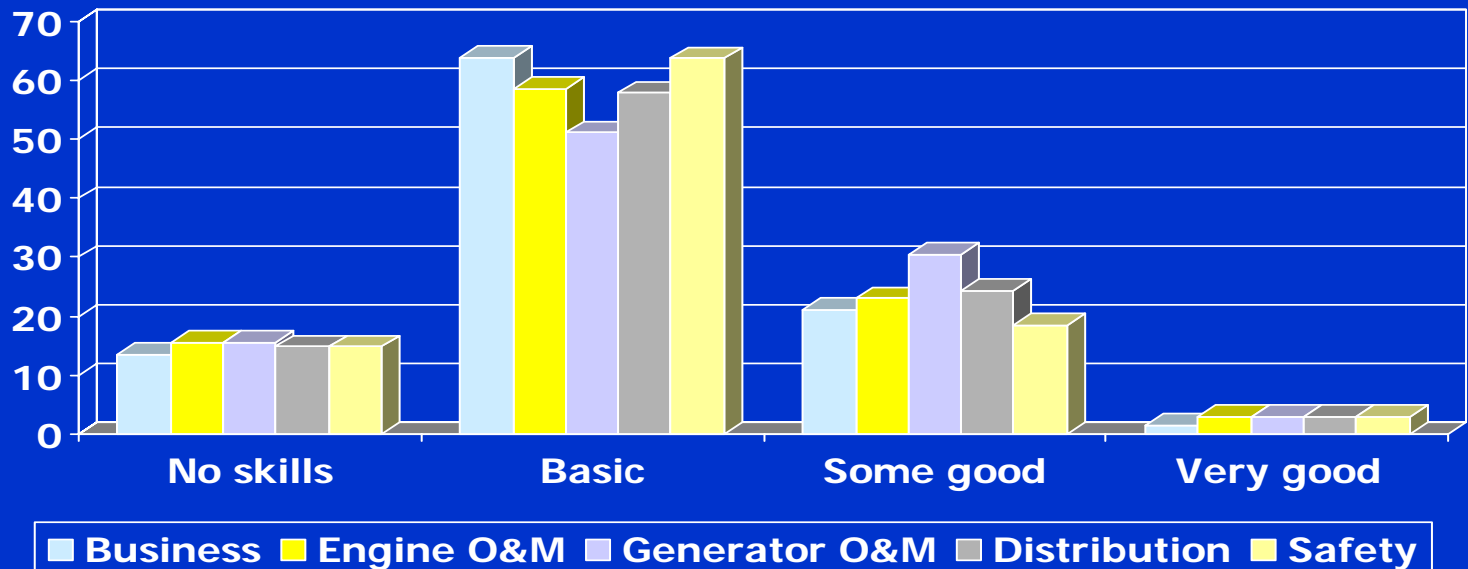


## REE Educational background



- Most of them have got the diplomas long time ago : 80.2% before 2000
- 39.3% can speak/read/write English; 14.1% French
- 21.5% can use PC

# REE technical & professional skills



- From own experience & on-the-job training
- Most of on-the-job training were on genset O&M

# REE technical & professional background (2)

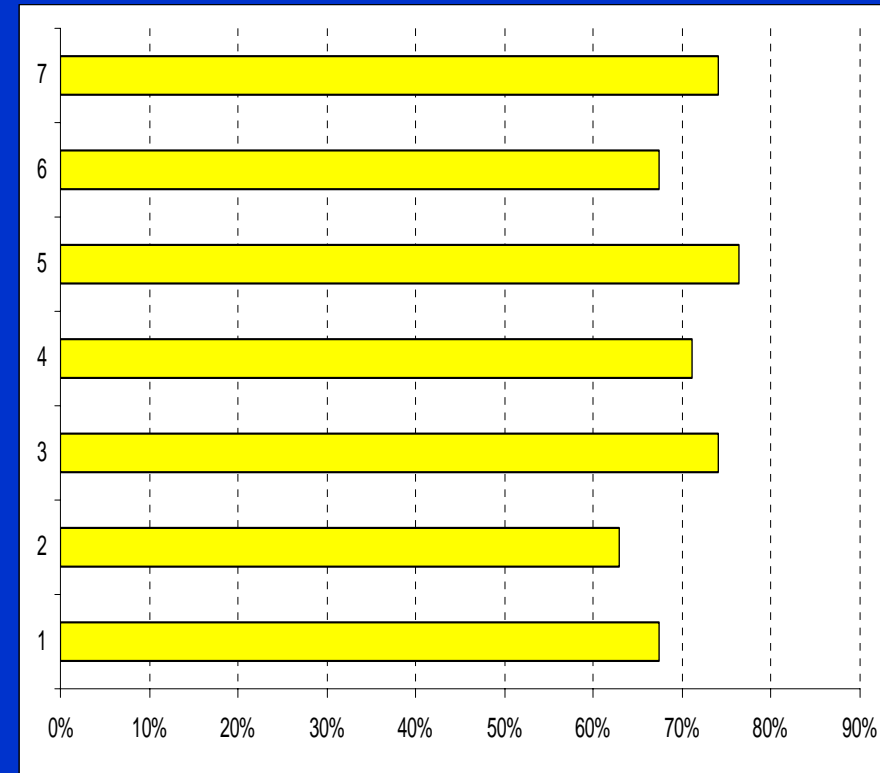
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- Three most valuable aspects of the training are
  - Practical & on-the-job training (96%)
  - Theoretical courses (68%)
  - Skill (47%)
- They did not pay for the training in the past
  - Yes : 5.2%
  - No : 94.8%
  - Cost : around 150\$/training
- No promotion/employment (97%) after the training



# REE needs for training

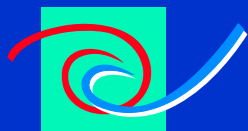
- 1 – Business management
- 2 – Generator types & fuel sources
- 3 – Energy efficiency, tech standards & licensing
- 4 – Diesel generator O&M
- 5 – Distribution network O&M
- 6 – Practical skills for O&M
- 7 – Safety
- Other proposed subjects : O&C board, power losses, administration & system management, MV, optimum design for power system, elect. installation with low cost constraints



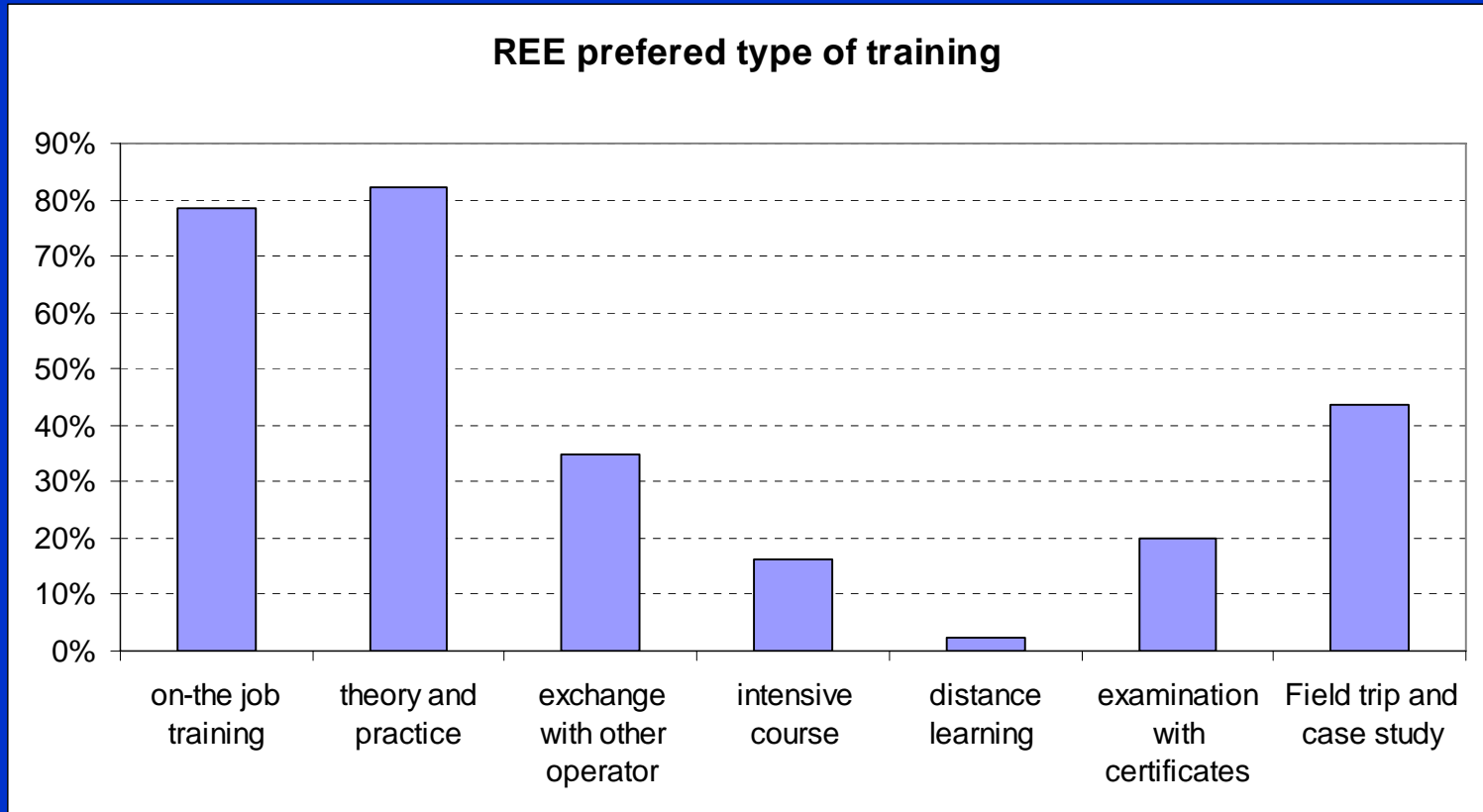
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# Why REE need the training? When?

- For improving technical skills : 51.9%
  - For improving knowledge & understanding : 5.2%
  - For business management & expansion : 44.4%
  - Reliability & safety concerns : 6.7%
  - Other concerns : 3%
- 
- They are willing to take the training any time (96%), but some prefer between July – Sep.
  - Most of them prefer to have the training during 1 week (33%) or 2 weeks (37%)



# What type of training REE prefer?



- 51.1% of them are ready to pay for the training
  - 38.5% ready to pay for about 50 US\$
  - 11.9% ready to pay for training from 50 – 99 US\$
  - 0.7% ready to pay for 100 – 200 US\$



# REE's most difficulties in their operation

- Complying with technical standards (71%)
- Lack of tech. knowledge to design & operate (64%)
- Lack of financial or management knowledge (43%)
- Making a business plan (36%)
- Lack of skilled personnel (21%)
- Lack of access to finance sources (18%)
- Lack of information (7%)...

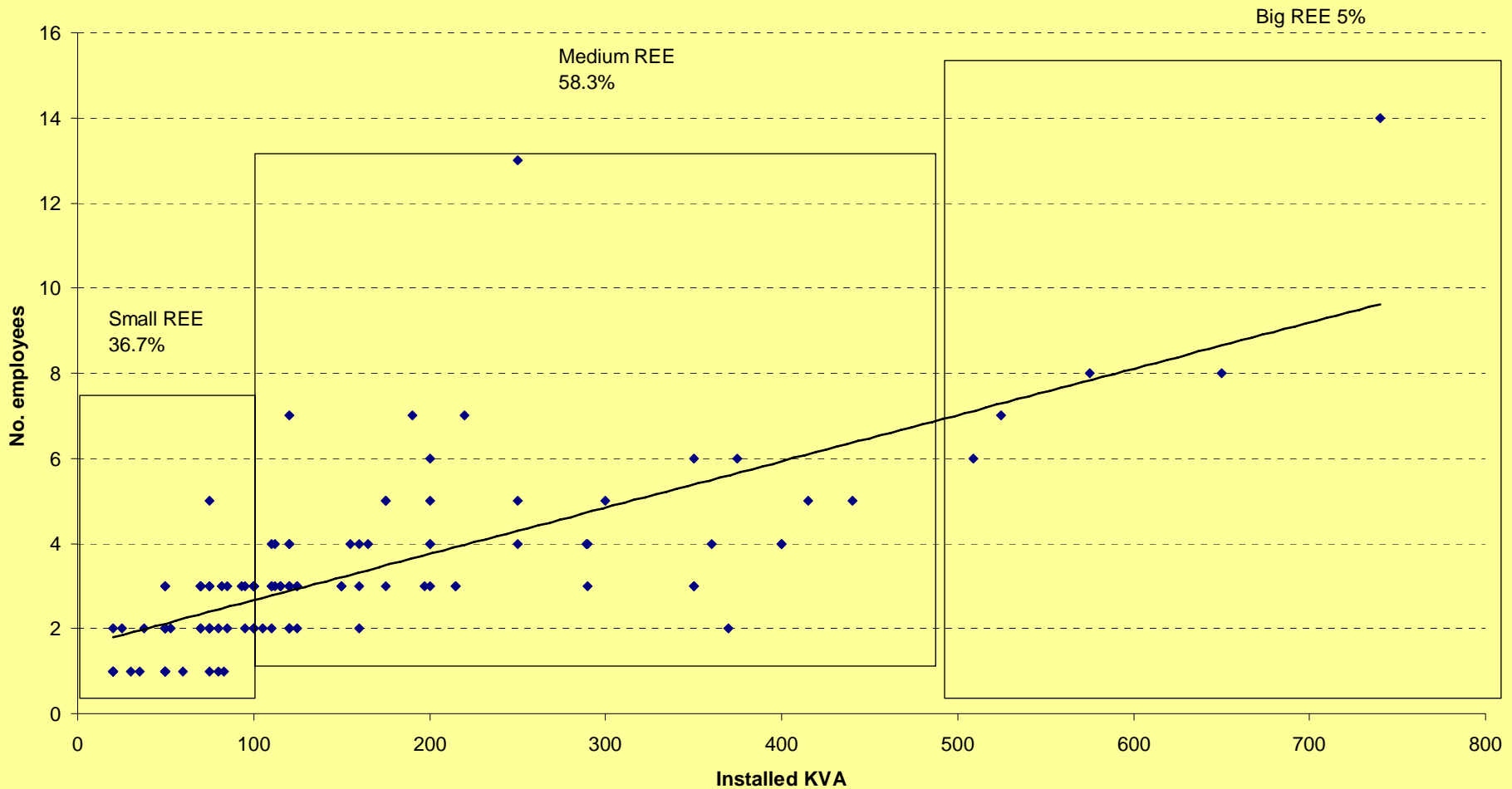
## Other relevant information

- Most of REE have license from authorities
- Exclusively diesel generators
- Few of them have different tariff for customers (19.2%)
- Most do not have/use a computer



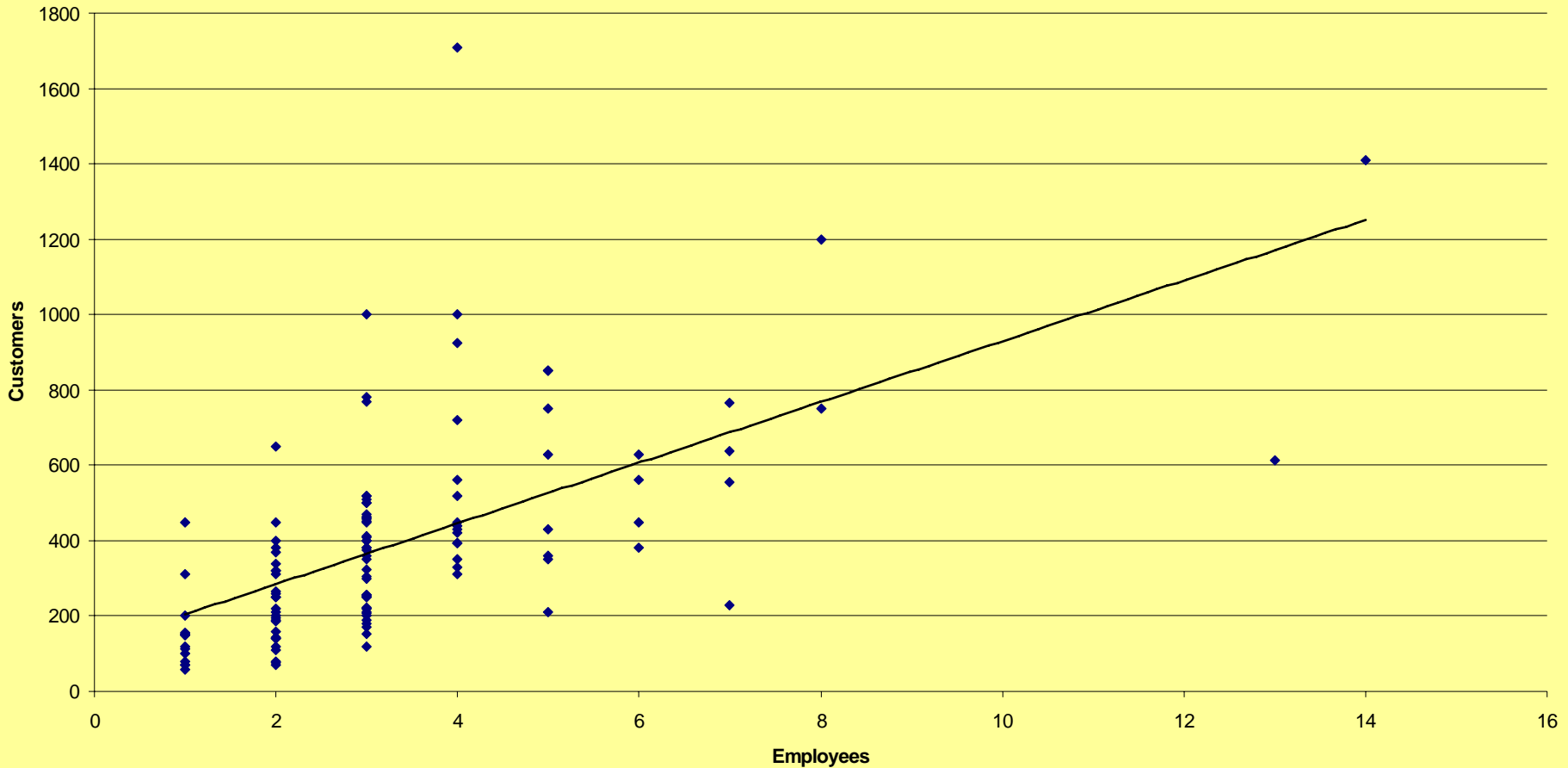
# REE's size and customers

Relationship between installed KVA & number of employees



# REE's customers and employees

Relationship between No. of customers & No. Employees



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# Discussions on REE needs assessment

- There is big need in vocational training : lack of knowledge, own leaning skills, lack of finance resources
- Subjects to be addressed in the country with a identified priority
  - Technical
  - Business management
- Target groups : REE owners and subordinates
- Next elaboration
  - Further detail the task in REE business
  - Knowledge and skills : what are “basic” & “good” meaning

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# PESCO

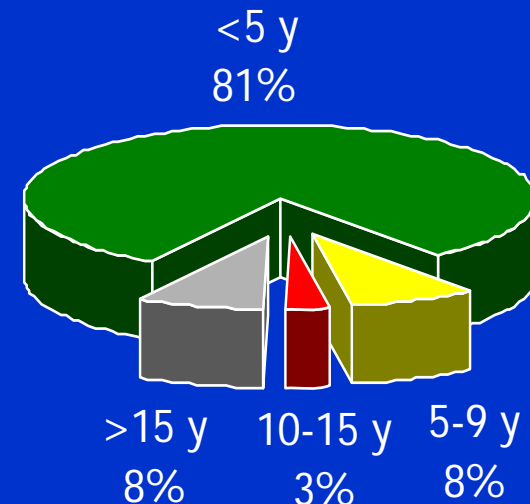




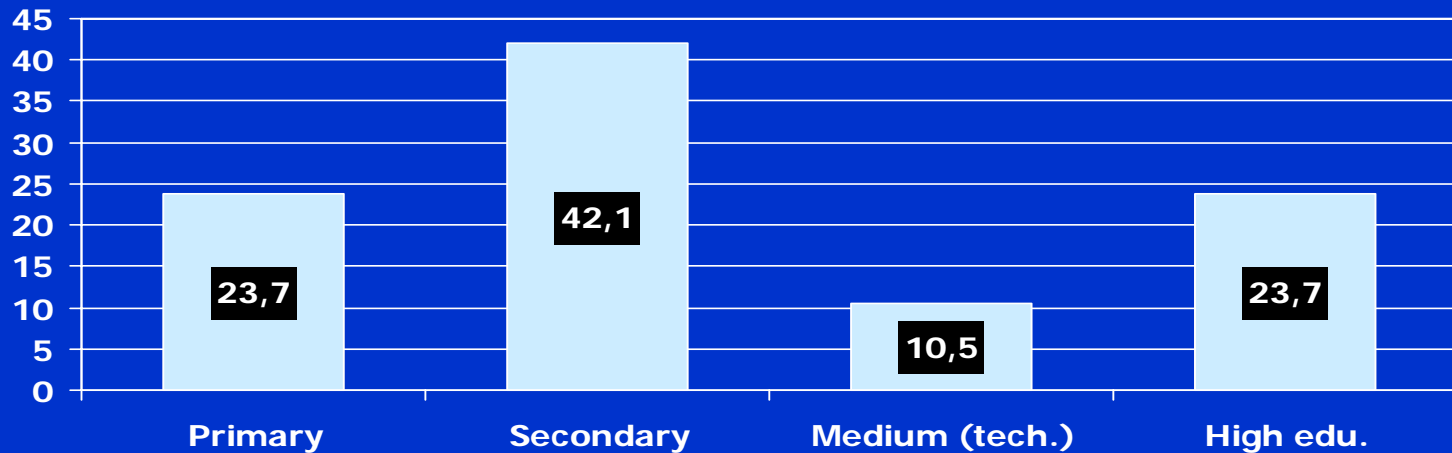
## Laos sample's statistics

- ✓ Age : most of them between 30-50 years olds (68,4%)
- ✓ Almost all of them are men (97,4%)
- ✓ Almost all of them are the owner or technician.
- ✓ They came to this business from various social classes : farmer, battery charging, police, nurse, teacher, driver, businessman, student, civil officer, technicians...
- ✓ **They are newcomers in this business : 81.1% of them has been in the business less than 5 years**

Number of years in this business

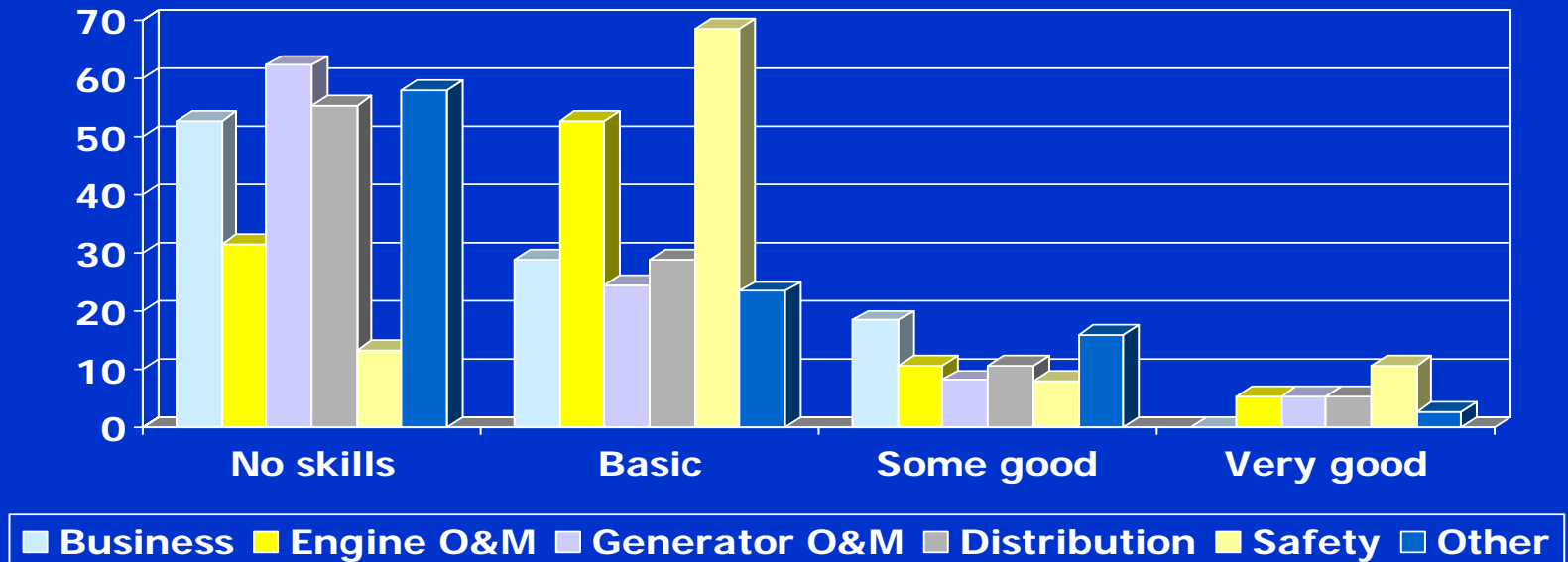


## PESCO Educational background



- Most of them have got the diplomas long time ago : 85.8% before 2000
- 28.9% can speak/read/write English; 18.4% Other language
- 17.1% can use PC

# PESCO technical & professional skills



- From own experience (50%) & on-the-job training (45%)
- Answers from the question "On-the-job training in the past" were not understood by the interviewees.

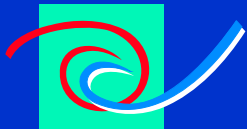
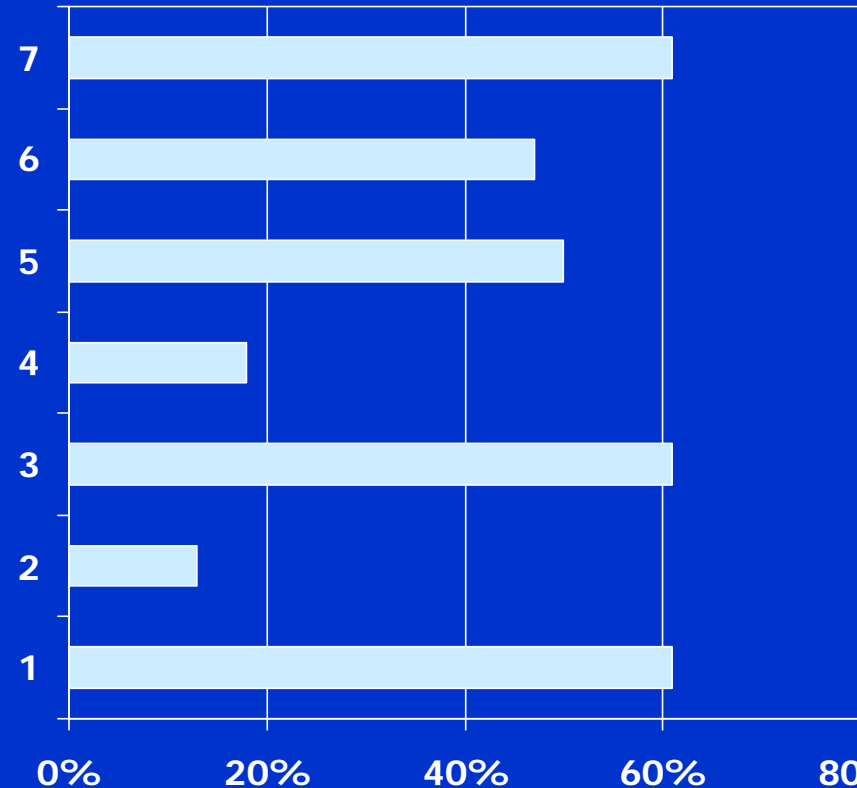
# PESCO technical & professional background (2)

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- Three most valuable aspects of the training are
  - Practical & on-the-job training (97%)
  - Theoretical courses (74%)
  - Skill (53%)
- Few of them paid for the training in the past
  - Yes : 17.6%
  - No : 82.4%
  - Cost : From 35 – 200 US\$/training
- Some got promotion/employment (45.5%) after the training

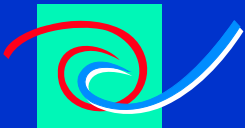
# PESCO needs for training

- 1 – Business management
- 2 – Generator types & fuel sources
- 3 – Energy efficiency, tech standards & licensing
- 4 – Diesel generator O&M
- 5 – Distribution network O&M
- 6 – Practical skills for O&M
- 7 – Safety
- Other proposed subjects : General electricity, SHS, administration & system management, MV, IT.

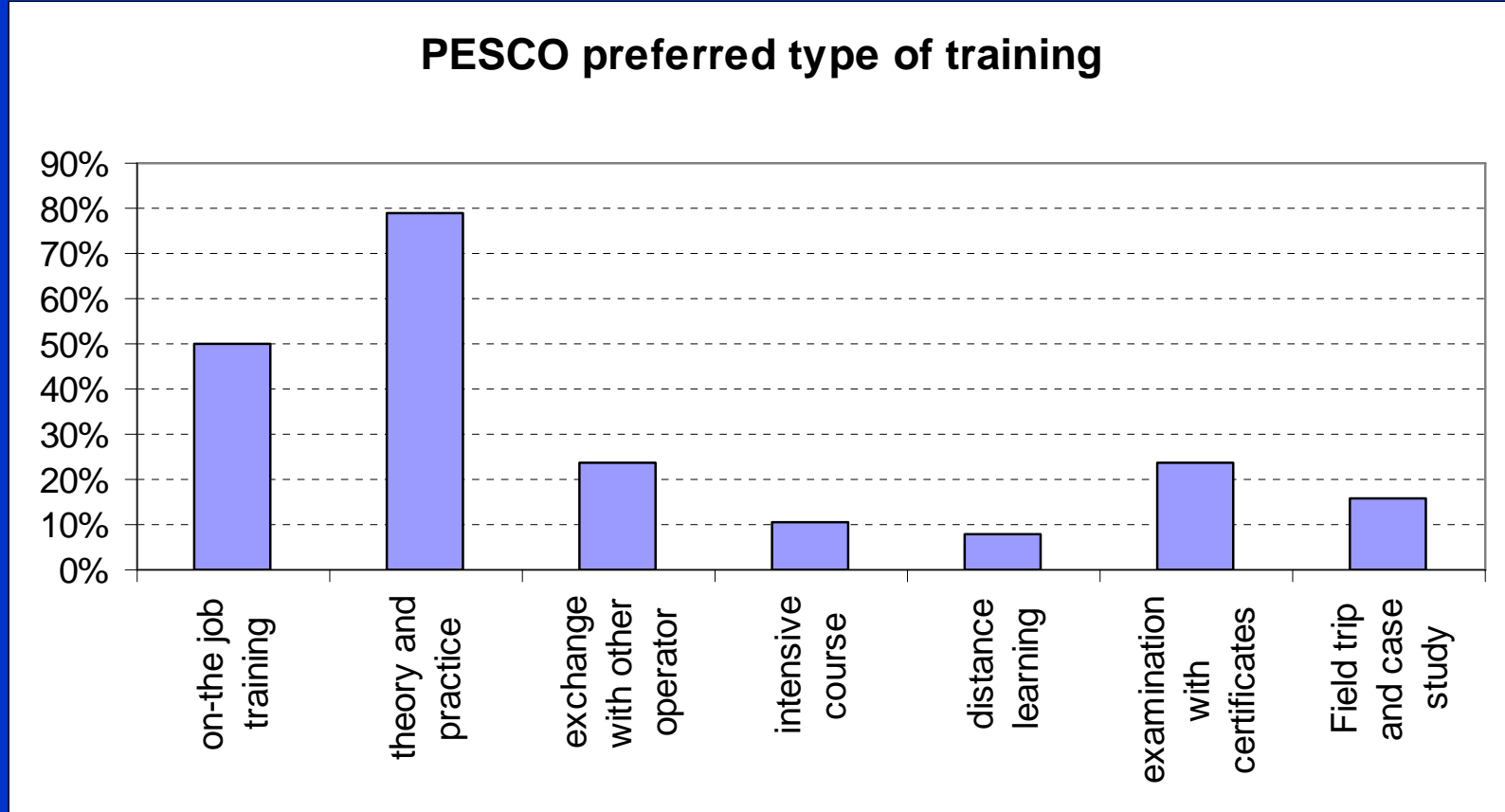


# Why PESCO need the training? When?

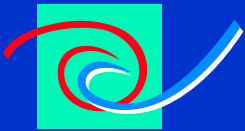
- For improving technical skills
- For improving knowledge & understanding
- For business management & expansion
- Reliability & safety concerns
  
- They are willing to take the training any time (87%), but some prefer between Jan – Mar & Jul – Sep
- Most of them prefer to have the training during 1 week (42%) or 2 weeks (21%) or 1 month (24%)



# What type of training PESCO prefer?



- 36.8% of them are ready to pay for the training
  - 18.4% ready to pay for about 50 US\$
  - 13.2% ready to pay for training from 50 – 99 US\$
  - 5.3% ready to pay for 100 – 200 US\$



# PESCO's most difficulties in their operation

- Lack of skilled personnel (39%)
- Lack of tech. knowledge to design & operate (37%)
- Lack of access to finance sources (29%)
- Lack of financial or management knowledge (21%)
- Making a business plan (18%)
- Lack of information (13%)...
- Complying with technical standards (11%)

## Other relevant information

- All have license from authorities (provincial industry dept.)
- Exclusively PV or hybrid
- No different tariff for customers

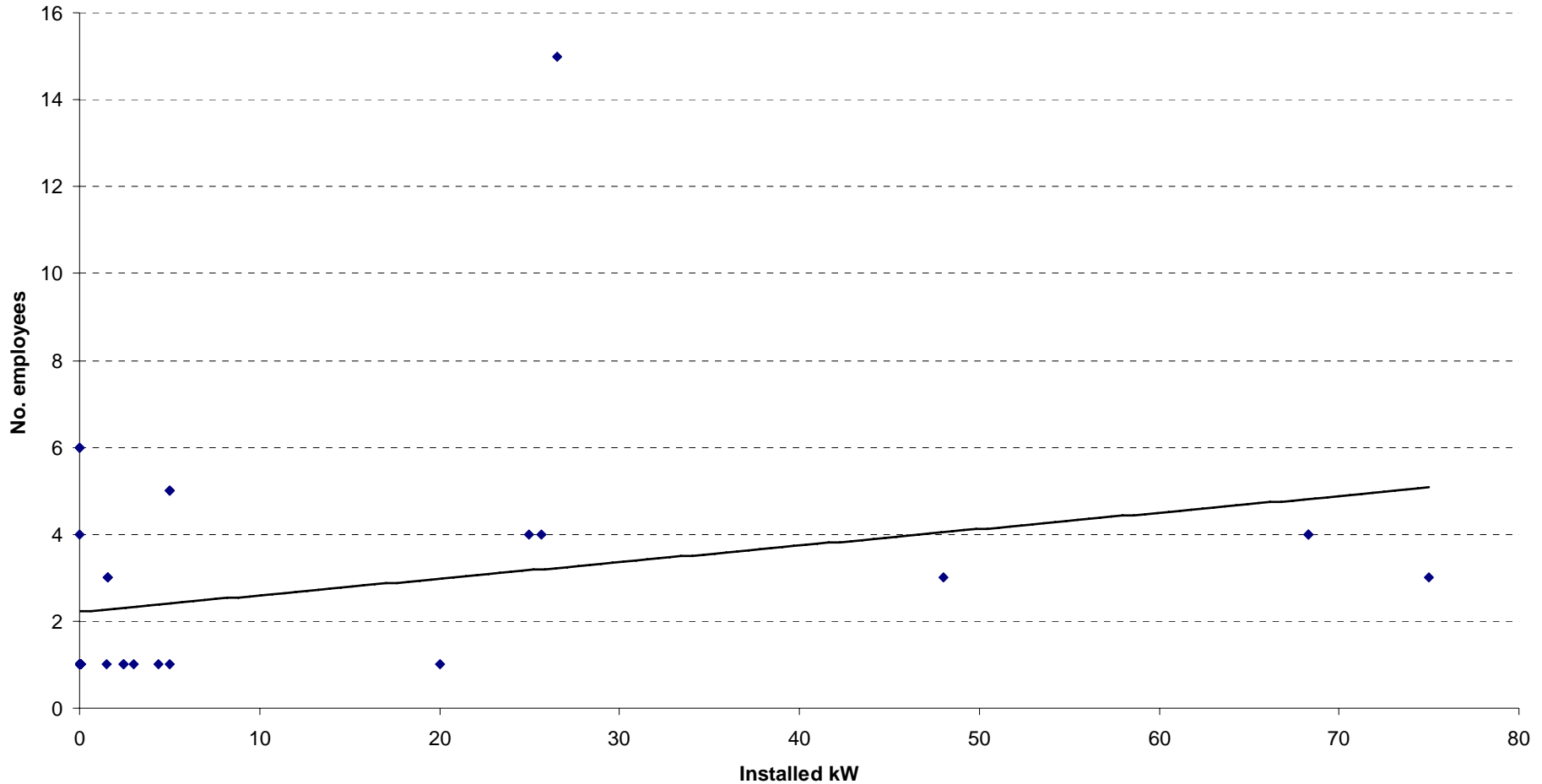
- Most do not have/use a computer (76,3%).





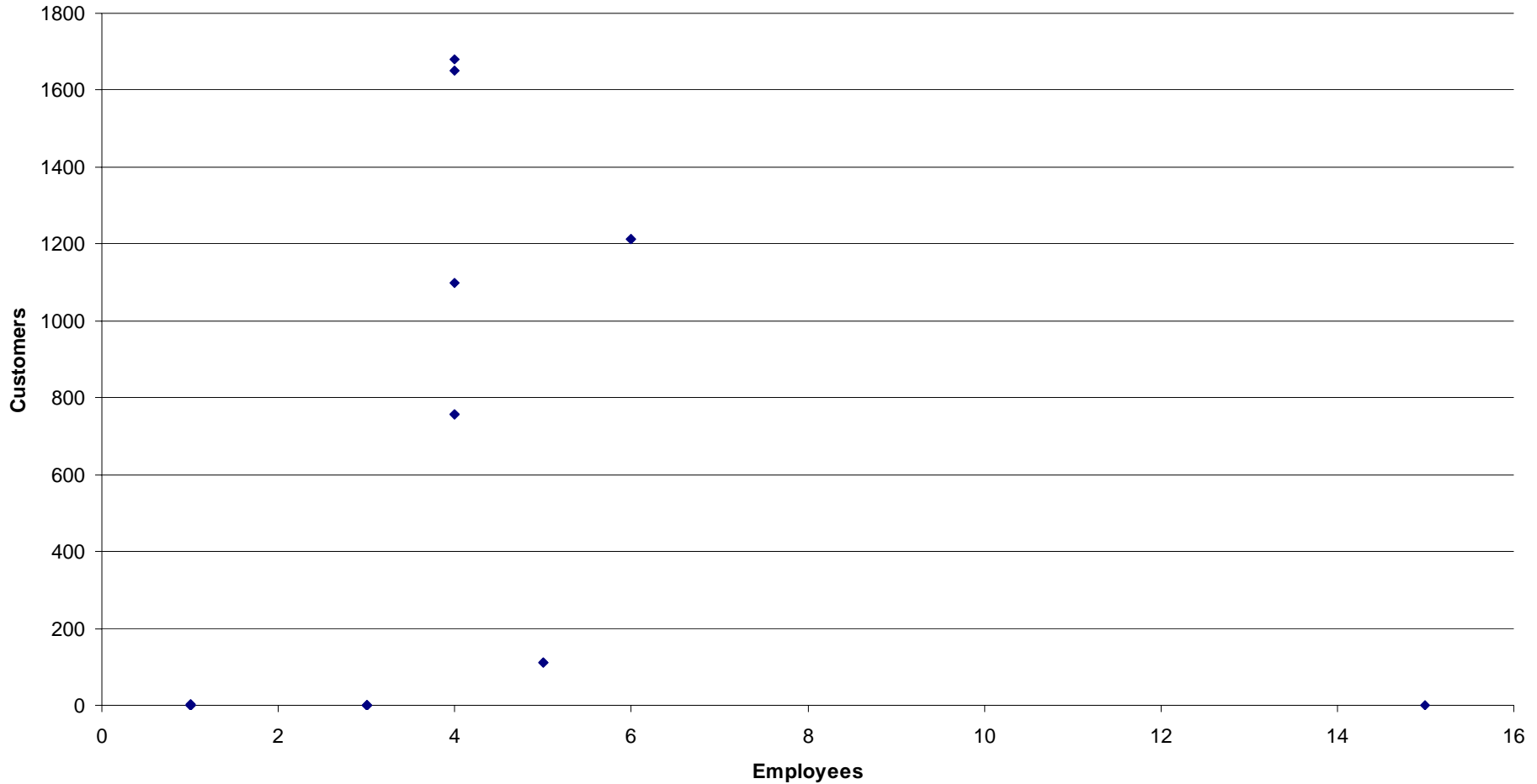
# REE's size and customers

Relationship between installed kW & number of employees



# REE's customers and employees

Relationship between No. of customers & No. Employees



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# Conclusions on PESCO needs assessment

- There is big need in vocational training : lack of knowledge, own leaning skills, lack of finance resources
- Subjects to be addressed in the country with a identified priority
  - Technical (particularly PV)
  - Business management
- Target groups : PESCO owners
- Next elaboration
  - Further detail the task in PESCO business
  - Knowledge and skills : what are “basic” & “good” meaning