



Program Status Report from the APEC-ESIS Secretariat

43rd Meeting of the APEC Expert Group
on Energy Efficiency & Conservation

Nicole Kearney
Senior Associate, CLASP
April 10, 2014
Honolulu, USA





Energy Standards Information System

APEC Economies

Click on an economy below to access a detailed view of Standards and Labeling Programs in the APEC region.

- | | | |
|---|-----------------------------------|----------------------------------|
| Australia | Brunei Darussalam | California |
| Canada | Chile | China (PRC) |
| Chinese Taipei (Taiwan) | Hong Kong | Indonesia |
| Japan | Korea (ROK) | Malaysia |
| Mexico | New Zealand | Papua New Guinea |
| Peru | Philippines | Russia |
| Singapore | Thailand | United States |
| Vietnam | | |

About APEC-ESIS

News & Publications

News

[SEAD Global Efficiency Medal Competition Recognizes Most Energy Efficient TVs in Europe](#)
2012-09-14 [READ MORE](#)

[China Ramps up Market Transformation Initiatives to Promote Energy Efficient Appliances](#)
2012-08-21 [READ MORE](#)

[APEC Compliance Workshop Facilitates Dialogue and Collaboration on MV&E in the Asia-Pacific Region](#)
2012-07-11 [READ MORE](#)

[CNIS Launches Major Consumer Awareness Campaign for China Energy Label](#)
2012-07-10 [READ MORE](#)

[Clean Energy Ministerial Roundtable Highlights Opportunities to Accelerate Market Transformation for Super-Efficient Appliances](#)
2012-05-21 [READ MORE](#)



Search CLASP's Global S&L Database

SHARE 

CLASP's Global Database allows policymakers and appliance energy efficiency experts to compare policies and regulations across countries and by product; to explore specific information about those policies; and to view and understand the legislative framework and history by country and economic region.

By Product Group

By Economy

All Products

Computers & ICT

Lighting

Building Materials

Power Supply & Power Conversion

Compressors

Standby

Water Heating

Pumps

Refrigeration

Ventilation, Fans & Blowers

Motors

Office Equipment

Miscellaneous

Cooking & Dishwashing

Heating & Air Conditioning

Televisions, Displays, & Audiovisual

Laundry

Browse

Reset Filters

Quick Links



Find S&L Information

Use our S&L Database and Economy Profiles to learn about energy efficiency standards and labeling programs across countries and regions.



Use Our Modeling Tools

Use our Policy Analysis Modeling System (PAMS) to estimate the energy savings and monetary costs of implementing local minimum efficiency performance standards.



Search Publications

Find technical studies and other resources by topic and location in our Publication Library.



An overview of all the products covered by mandatory and voluntary regulation in that region

Economy Finder

SHARE +

Use our Economy Finder to find out more about the policies, legislative frameworks, and people and organizations responsible for implementing appliance energy efficiency policies in particular countries and regions.

Select an Economy

United States ▼

United States

Overview

- [Introduction](#)
- [Basic Organization](#)
- [Legislative S&L History](#)
- [S&L Regulatory Process](#)
- [Economy Contacts, S&L Summary Table, and Web Links](#)

INTRODUCTION

The U.S. makes extensive use of minimum standards, endorsement labels, and comparative labels to improve the energy efficiency of equipment and appliances.

The U.S. Department of Energy's (DOE) Appliances and Commercial Equipment Standards Program develops test procedures and minimum efficiency performance

Economy (?)	Product (?)	Policy (?)		
		Policy Type	Policy Status	Most Recent Effective Date
View ▶				
United States	Product Group: Ventilation, Fans & Blowers Type: Ceiling Fan Product Sector: Residential	Label Endorsement	Entered into Force - No Activity	2012
View ▶				
United States	Product Group: Water Heating Type: Pool Heater Product Sector: Residential	Minimum Energy Performance Standard	Revision Completed - Pending Implementation	2013
View ▶				
United States	Product Group: Pumps Type: All Other	Minimum Energy Performance Standard	Under Consideration for Development	Unknown

An overview of the Country or Economy including:

- Introduction
- Basic Organization
- Legislative S&L History
- S&L Regulatory Process
- Economy Contacts, S&L Summary Table, and Web Links



- Online resource that allows policy makers and S&L practitioners to compare policies and regulations across countries and by product (excel feature)
- Includes **48 economies** and two regional associations (APEC and SEAD) which account for over 91% of the world's total energy consumption
- Covers **17 product** categories of appliances, equipment and lighting
 - Sectors include residential, commercial, industrial or multi-sector
- Distinguishes policy types, policy status, and effective dates of implementation
 - Policy types include MEPS, Endorsement label, Comparative label
- Links to:
 - Implementing Organization
 - Policy or legislation document or website



- Content Updates:
 - Researching 2014 updates for all countries and economies listed in the S&L database
 - Completed updates expected by September 2014
- Operations and Maintenance Updates:
 - Inactive APEC-ESIS email which we are working to resolve
 - APEC-ESIS website updated to include APEC-CAST information

Assistance needed from APEC EGEE&C Members

Contact person who can provide current and updated S&L program information for your economy



2014 S&L Database Updates

Economy	Status
Australia	In progress
Brunei-Darussalam	In progress
Canada	In progress
Chile	In progress
Chinese Taipei	In progress
Hong Kong, China	In progress
Indonesia	In progress
Japan	In progress
Korea	In progress
Malaysia	In progress
Mexico	In progress



2014 S&L Database Updates

Economy	Status
New Zealand	In progress
Papua New Guinea	In progress
People's Republic of China	In progress
Peru	In progress
Philippines	In progress
Russia	In progress
Singapore	In progress
Thailand	In progress
United States	In progress
Vietnam	In progress

If APEC EGEE&C Economy Profiles and Database information is inaccurate, please contact Nicole Kearney at nkearney@clasponline.org



- The Super-efficient Equipment and Appliance Deployment (SEAD) Initiative of the Clean Energy Ministerial currently provides funding for the following activities:
 - Hosting and maintenance of ESIS webpage;
 - Update of economy content in the database;
 - CLASP's continued role as ESIS Secretariat; and,
 - CLASP's participation at APEC meetings
- Currently ESIS has received no additional economy contributions





Thank you!

Please contact Nicole Kearney at nkearney@clasponline.org
with any questions or comments





SEAD-funded APEC-CAST Project Updates

43rd Meeting of the APEC Expert Group
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Primary objectives:

- Promote harmonized test procedures
- Support development of aligned energy efficiency standards and labels (S&L) in APEC economies
- Fund one or more projects each year over a 5 year period.





Review of Proposal Selection

Objective: Identify projects that can be launched in 2014/2015 and that will advance S&L development in APEC economies.

Collaboration between EGEE&C and the Super-efficient Equipment and Appliance Deployment (SEAD) Initiative:

- SEAD-funded APEC-CAST initiative
- Leverage technical expertise provided through the SEAD international technical collaborations

Administrator: The Collaborative Labeling and Appliance Standards Program (CLASP), as the SEAD Operating Agent.





Call for 2014 / 2015 Projects

Date	Activity
April – June 2014	Request project proposal template from CLASP and complete and submit project proposals to CLASP (nkearney@clasponline.org)
July 2014	CLASP / SEAD to review proposals and select projects
August 2014	Refine proposals with proposal leads Identify resource needs Confirm resource contribution commitments
September 2014	Collaborate to prepare detailed statements of work and budgets CLASP to initiate contracting process
October 2014	CLASP will initiate and manage selected projects in collaboration with project leads



Current APEC-CAST Projects

SEAD-funded APEC CAST Project	APEC Economy Sponsor	Project Partners	Status
Evaluation and proposal for internationally aligned test methods and performance requirements for televisions	Australia Department of Industry (DoI)	DoI, CLASP, Intertek	In progress Seeking information from APEC economies & planning workshops
Study of repair best practices and energy efficiency improvement potential through repair of electric motors	China National Institute of Standardization (China)	CNIS, CLASP, Econoler, International Copper Association	Completed Next steps: Organise workshop (next EGEE&C meeting?)
Evaluation and initial draft of harmonized test methods and level definitions for heat pump water heaters	Australia Department of Industry(DoI)	DoI, CLASP, George Wilkenfeld and Associates, Korea Testing Laboratory, International Copper Association	Completed Next steps: Disseminate recommendations



Project description:

- Conduct technical analysis of regional, national and international test methods and performance requirements for TVs
- Conduct technical analysis of existing test loops associated with IEC 62087:2011
- Conduct technical analysis of automatic brightness control (ABC) for televisions
- Conduct technical analysis of existing voluntary and mandatory standards for television energy performance
- Propose internationally-comparable and aligned test methods and efficiency class definitions for TVs to be considered by policy makers setting MEPS and energy labels

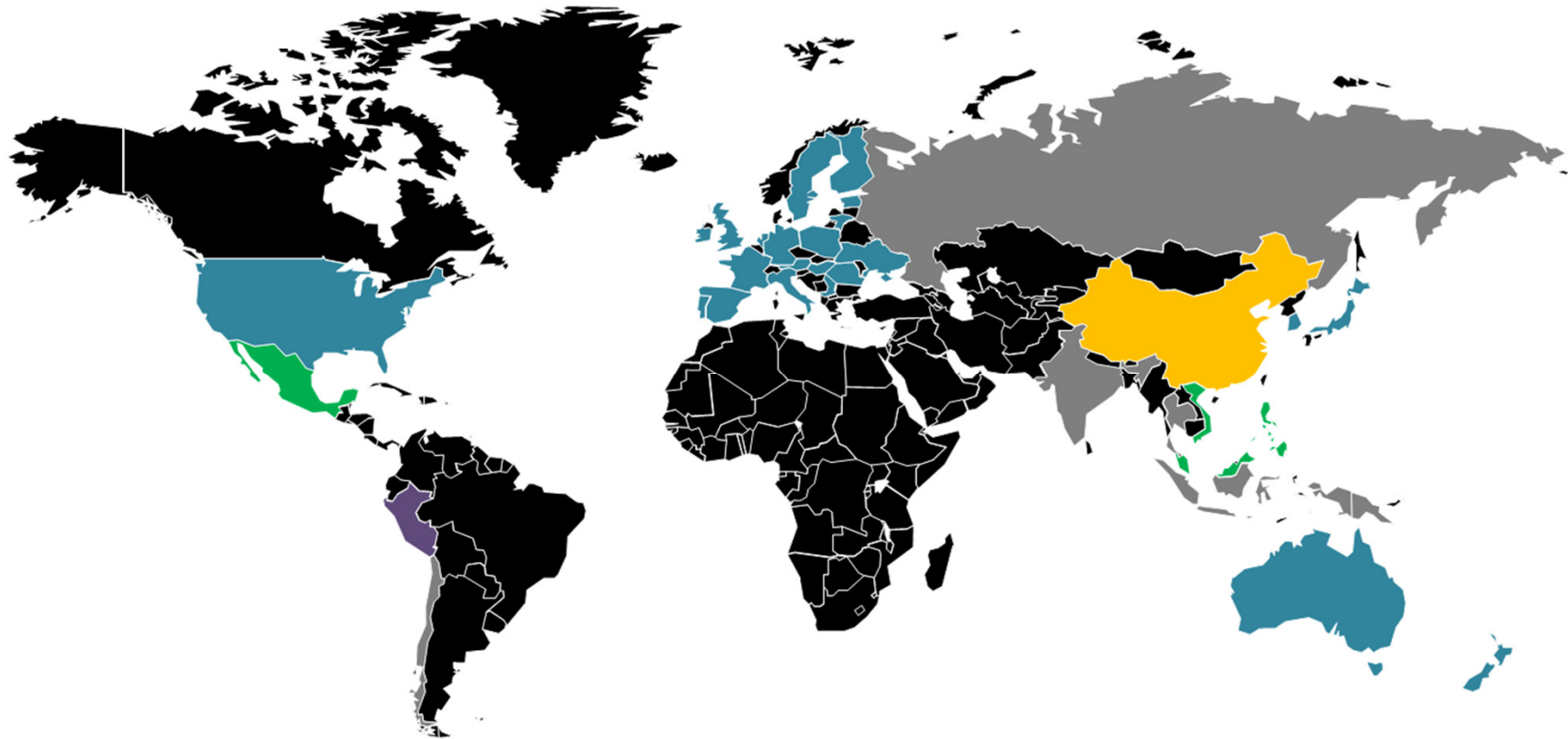


Project schedule:

Timeline	Activity
November 2013	Project kick-off
May 2014	Draft Reports on: <ul style="list-style-type: none"> • TV test methods • Energy performance levels in APEC region
May 2014	Workshop to present reports and seek feedback in conjunction with the IEC 62087 technical committee meeting in Seattle, USA
November 2014	Final draft reports and Dissemination Workshop alongside APEC EGEE&C Meeting
January 2015	End of project



Use of IEC62087 Across the Globe



Key

- Country uses IEC62087 with no modification
- Country uses IEC62087 with minor modification or additional test requirements
- Selective use of parts of IEC62087
- No standards
- Not clear
- Country out of scope



Next Steps:

- Finalising analysis of test methodologies, policies and performance standards
- Practical testing of televisions to explore priority issues
- Collating evidence and drafting proposed language for possible revisions on test methodologies
- Gathering data for performance standard analysis
- Developing 'international ladder of performance' for TVs
- Consultation with technical experts at the next IEC Technical Committee meeting in Seattle, USA (May 2014)
- Presentation of test method and performance standard related work at next APEC EGEE&C meeting



TVs: Questions to APEC EGEE&C

- **Performance data:** Recent performance data on TVs needed, to inform international performance benchmarking for policy makers.
- **Upcoming standards, regulations and labels:** Updates on TV regulation development & updates needed, inc timescales, regional customisation, consultation dates, and contact points, specifically from:
 - **Philippines; Singapore; Thailand; Vietnam; Indonesia; India; South American countries, particularly Mexico, Argentina**
- **Barriers to harmonisation of test methods, metrics for energy performance and policy approaches:** Any known barriers to harmonisation of TV testing and performance standards? Ex. if or how plasma and LCD screen technologies are separated into separate product categories for labels and standards
- **Dissemination of project results:** Recommendations welcomed for project dissemination to ensure greatest impact on harmonisation.



Project description:

- Identify current best practices in motor re-winding
- Conduct market overview to compare best practices to existing practices used in APEC economies (focus on 5 economies: China, Japan, New Zealand, US, Vietnam)
- Conduct modeling and simulation to identify energy efficiency improvement potential of motor re-winding best practices
- Provide recommendations for the development of standards, highlighting the potential for energy savings through repair and preventative maintenance of installed motors



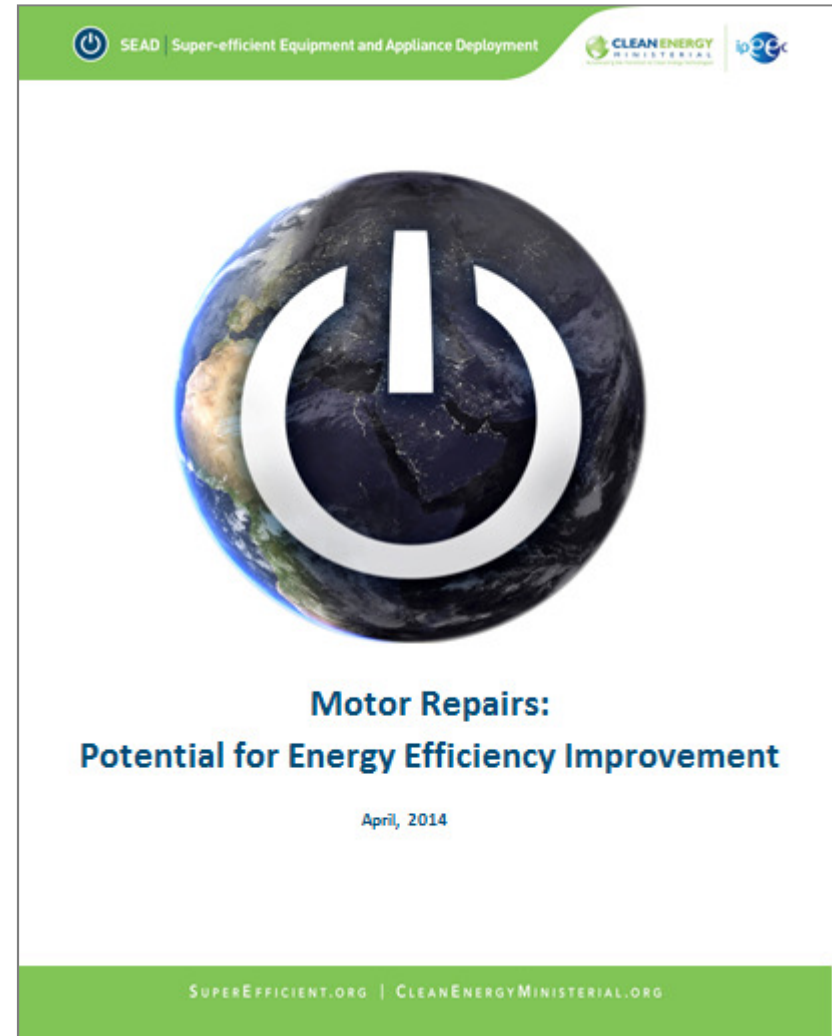
Project schedule:

Timeline	Activity
September 2012	Project kick-off
October 2013	Report Task 1: Report of motor repair best practices and in-country case studies
November 2013	Report Task 2: Draft market overview
January 2014	Report Task 3: Analysis of energy efficiency improvement potential
April 2014	Final Report
Late 2014	Dissemination Workshop



Motor Repairs Report

- Soon available on the SEAD website
- Soon available on APEC EGEE&C and APEC-ESIS websites
- Soon available on CLASP website



Project description:

- Analyze existing regional, national, and international test methods, as well as test methods and standards in development
- Test 3 heat pump water heaters using 5 different test methods to compare strengths and weaknesses of each
- Recommend internationally-comparable test methods, standards, and efficiency level definitions



Heat Pump Water Heaters

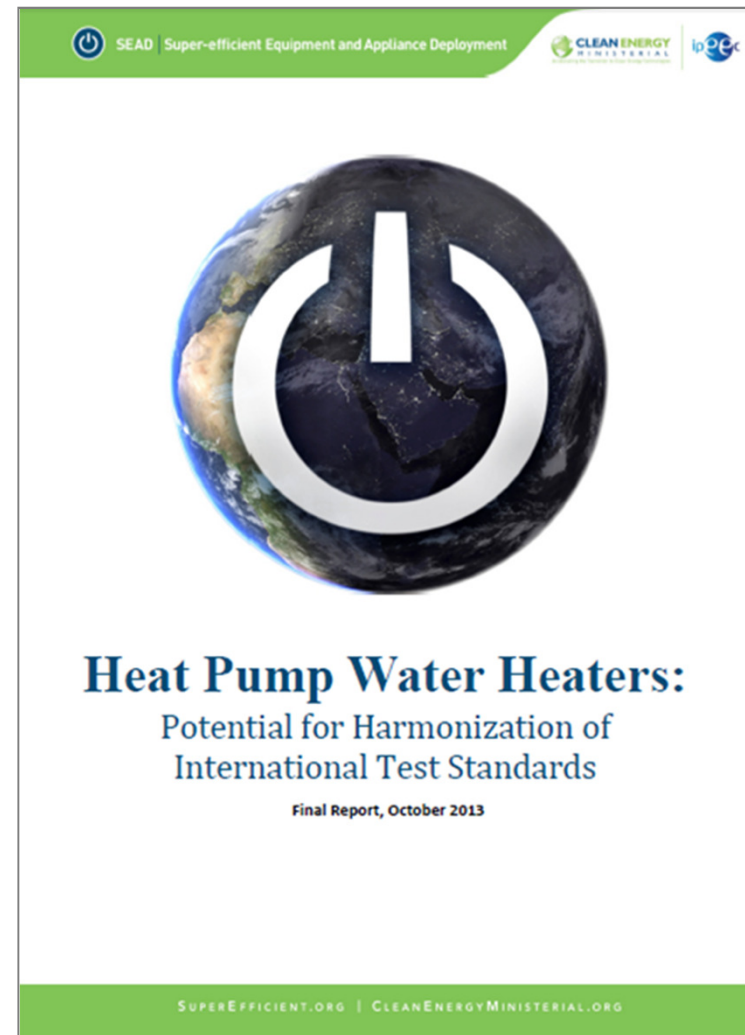
Project schedule:

Timeline	Activity
October 2012	Project kick-off
March 2013	Technical analysis of existing test methods report distributed for stakeholder review
12 April 2013	International consultation workshop
February – June 2013	Testing and modeling and simulation
September 2013	Report dissemination workshop at EEDAL, Portugal
October 2013	Final report published online



Heat Pump Water Heater Report and Workshop Presentations

- Available on the [SEAD website](#)
- Soon available on APEC EGEE&C and APEC-ESIS websites
- Available on [CLASP website](#)





Thank you!

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For more information on the Super-efficient Equipment and Appliance Deployment (SEAD) Initiative and published reports please visit: www.superefficient.org





APEC-CAST

Electric Motors Repair Project

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April 10, 2014
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Project Overview

- Study of repair best practices and energy efficiency improvement potential through repair of **electric motors**
- **Implementing Partner:** Econoler (with support from R&D Laboratory of ABB)
- **APEC Economy Sponsor:** China National Institute of Standardization (China)
- **Project Partners:** CNIS, CLASP, International Copper Association
- **Project Duration:** August 2012 – April 2014 (with some delays)
- **Budget:** \$184,000 USD



Project Background

- Motors fail during operation every year
- Most are repaired and put back into service, rather than replaced
- Poor practices are typically used, which degrades initial efficiency of motors, especially when they are new
- Where advanced repair techniques are used, efficiency of motors can be maintained or increased
- Advanced practices can cost the same as poor practices
- Adopting improved / best practice repair practices can generate significant energy savings



Aim of Study

- Estimate energy efficiency improvement potential from best motor repair practices
- Looking at five selected economies:
 - China
 - Japan
 - New Zealand
 - United States
 - Vietnam
- Study will benefit policy-makers & standardisation bodies
- Help to raise awareness on potential for energy savings from repair and preventative maintenance of installed motors



Scope of Study

- Motors considered had following characteristics:
 - Open drip-proof (ODP) and totally enclosed fan-cooled features (TEFC)
 - Outputs of 0.75 kW (1 hp) and above
 - 50-Hz or 60-Hz frequencies
 - Three-phases
 - Two poles and above
- Mainly motors from industry sector, as these account for around 60% of electricity consumption by all electric motors across sectors
- Repairs considered that have big impact on motor efficiency
 - Rewinding without lamination repair
 - Rewinding with lamination repair
 - Rotor repair
 - Rotor replacement



Three tasks carried out throughout the project

- Task 1 – Existing and Best Motor Repair Practices
 - Survey developed to collect data on repair practices used by repair shops and on motor failure and repair market
- Task 2 – Market Overview
 - Data from Task 1 fed into this task, to establish characteristics of motor failure and repair in the selected economies
- Task 3 – Potential for Energy Efficiency Improvement in Motor Winding and Repair
 - Findings from Tasks 1 and 2 used to inform this task to estimate energy savings resulting from employing best practices to repair motors and from replacing aluminium rotors with copper rotors



- Data readily available from two national studies in New Zealand (2006) and the US (1998):
 - Number, type and size of motors installed
 - Motor applications and purposes
 - Number of operating hours per year
 - Number of motor failure cases, motors repaired, put back into service
- No publically available information from China, Japan and Vietnam
- Two phases to collect additional data:
 - Email and telephone interviews with these economies (no success)
 - In-person interviews at repair shops in each country
 - No records kept, so information based on respondents' practical experience in motor repair



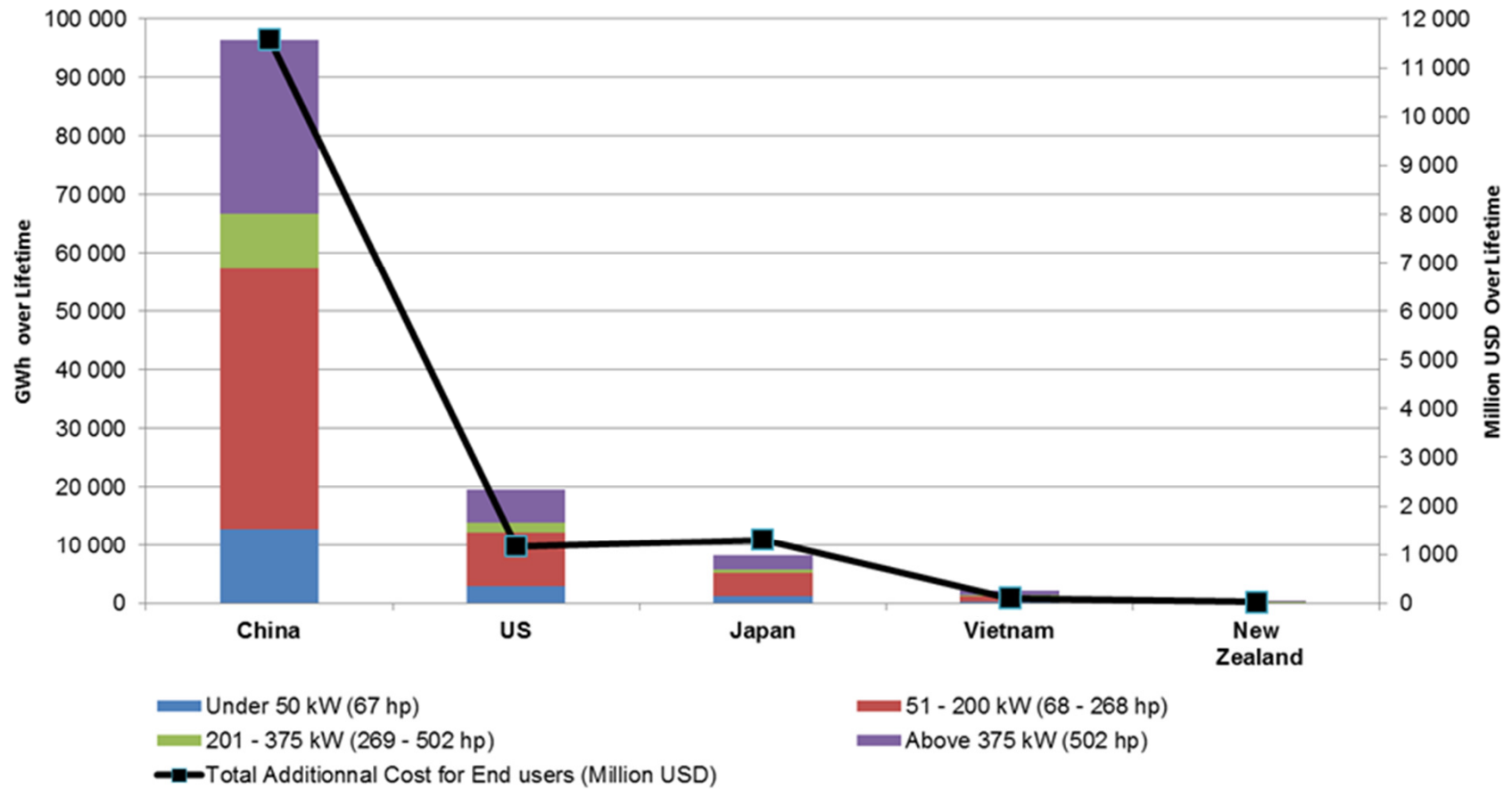
Key Findings

- Most common poor practices:
 - Removing windings using hand tools and mechanical stripping by cold process
 - Stator lamination repair – visual inspections, ignoring defects
 - Use of inappropriate tools and equipment
- Stator winding failure is leading reason for motor repairs in most economies, but China faces many rotor failures
- Most motor failures repaired rather than replaced
- Potential average annual savings potential between 8GWh and 3,800 GWh in the five economies (less for NZ, more for China)
- Energy efficiency degradation can be avoided with best practices, with a pay back period of two years
- Not enough take up of copper rotors – which can result in significant savings (mainly in US and China). If all aluminium rotors replaced with copper in 2015, potential energy savings estimated at 31,100 GWh and 15,900 GWh for China and US respectively (NZ – 180 GWh savings)





Annual Electricity Savings after Repair Using Best Practices



Barriers to Use of Best Practices

Several barriers impede transition to and market promotion of copper rotors and best practices for motor repair and rewind. These include:

- Lack of harmonised repair standards in the five economies
- Lack of simple certification programs – too complex or expensive
- Customers prefer quick repair turnaround over repair quality
- Lack of experienced motor repairers
- Lack of appropriate tools and equipment mainly in China and Vietnam or in smaller shops
- Lack of copper rotor inventory & specialised equipment in repair shops
- Lack of mass copper rotor production – time consuming, expensive, technology changes, only supplied by their manufacturers



Recommendations

- Develop repair quality standards and certification programs
 - Create and implement rewind/repair standards and labels
 - Fill gaps in existing standards
 - Market shops as following best practices
- Design and implement awareness campaign for motor users
- Create training facilities and develop training materials
- Design and implement financing schemes to help repair facilities upgrade equipment
- Speed up transition from aluminium rotors to copper rotors
 - By keeping copper rotors in stock
 - End users to time motor maintenance, refurbishment and repair to coincide with planned down times



- Publishing the Project Reports on the SEAD website, with links from:
 - APEC EGEE&C website
 - CLASP website
 - APEC-ESIS website
 - Project partner websites
- Disseminating the project report via newsletters and targeted mailings
- Organising dissemination workshop alongside next APEC EGEE&C meeting, with support from and in collaboration with ICA and CNIS, to determine how to move forward and implement the project recommendations.





Thank you!

Please contact Nicole Kearney at nkearney@clasponline.org with any questions or comments

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