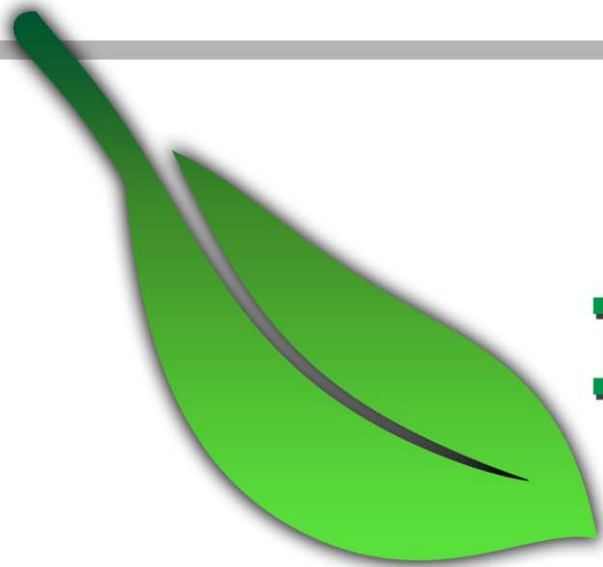


SEMINAR



Greening of the Maltese Industry

*The Palace, Sliema
13th April 2016*





Greening of the Maltese Industry

The Palace, Sliema

13th April 2016

Programme

- 08:30 Registration and Welcome Coffee
- 09:00 **Welcome Address**
Anton Pizzuto - Director - Cleaner Technology Centre
- 09:10 **Opening Messages**
Hon. Leo Brincat MP - Minister for the Environment, Sustainable Development and Climate Change
Hon. Chris Cardona MP - Minister for the Economy, Investment and Small Business
- 09:25 **Environmental Permitting of Maltese Industry**
Michael Sant - Manager - Environmental Permitting and Industry Unit, Environment and Resources Authority
- 09:45 **Maltese Industry – how GREEN can we paint it?**
Perit David Xuereb - Chairman - Energy and Environment Committee, Chamber of Commerce
- 10:05 **EU Producer Responsibility Legislation: Implementation in Malta with a focus on WEEE, Batteries and Packaging**
Kevin Mercieca - Manager - Waste, Air, Radiation and Noise Unit, Environment and Resources Authority
- 10:25 Question and Answer Session
- 10:45 Coffee Break**
- 11:30 **Energy Efficiency Directive and Industrial Energy Auditing**
Ing. Charles Buttigieg, Sustainable Energy and Water Conservation Unit, Ministry of Energy and Health
- 11:50 **Energy Excellence at Trelleborg Malta**
Neville Grima - Maintenance and Facilities Manager, Trelleborg Sealing Solutions
- 12:10 **Greening the Industry in Practice**
Denise Ann Buhagiar - Plant Facilities - Site Environmental Champion, STMicroelectronics
- 12:30 **The Case for Environmental Sustainability in the Pharmaceutical Manufacturing Sector**
Daniela Cauchi - Director - Environment, Health and Safety, Actavis Malta Operations
- 12:50 Question and Answer Session
- 13:00 Networking Lunch**

Seminar Organising Committee: Mr Anton Pizzuto, Dr Ing. Paul Refalo, Ms Margaret Camilleri Fenech

Environmental Permitting of Maltese Industry

Environmental Permitting & Industry Unit

Life cycle of an industrial facility

- **Land use planning** – determines where and how new enterprises will be established
- **Development Permits** – determines footprint, location of individual installations, controlling issues like visual impact, traffic, storage, closure
- **Environmental Impact Assessment** processes – to ensure that development permit decisions are informed
- **Environmental Permits** – regulate ongoing operations at enterprises, closure and aftercare
- **Compliance inspections**

Environmental Permitting

Environmental permitting following three main streams. Depending on environmental risk:

- IPPC permits as defined by the Industrial Emissions Directive
- Environmental Permits for those facilities requiring operation specific or site specific concerns
- General Binding Rules, which are standardised permits which involves registration by the applicant

Objectives

- **Implementation of large number of environmental regulations** concerning IPPC + IED, VOC Solvents, Waste management, Seveso
- Implementation of **Air, Water and Waste Directives**: Policies & measures often require environmental permitting
- To address substantial **local environmental impacts** arising from industrial activities not identified in specific regulations
- To **facilitate and simplify industry's compliance** with environmental regulations

Strategy

- Risk-based approach ensures that regulatory effort is directed towards greatest need, and is most cost effective
- One permit for most regulations under ERA remit
- Operator is made aware of obligations under legislation and any changes, facilitating compliance
- Process enables operators to identify areas of priority environmental concern & issues for risk management
- Permit is renewable and variable – permit process is a dynamic interaction between operator and regulator
- Basis for compliance activity
- Defines extent of liability for operators
- **Shaping of new policy**

Operational aspects considered in the environmental permitting process

Contingency

- Spillages (fuels, raw materials, solvents, solid wastes, effluent)
- Failure of abatement equipment

Emissions to Air

- Dust, solvents from process
 - Boilers & generators
- Diffuse emissions (e.g. quarries, batching plants)

Storage

- Raw materials, chemicals, fuels, waste (possibly hazardous)

INSTALLATION

Waste

- Hazardous materials (e.g. spent solvents, reject products, microbiological, lab waste, waste oils)
- Non-hazardous waste
 - Waste transfers
 - Waste destination

Noise & vibration

- Crushing/blasting operations (e.g. quarries)
 - Air handling systems, alarms

Discharges of Effluent

- Process wastes, washings
 - Grease
- Water purification: brine
 - Discharges to sewer/sea/groundwater?

Permit conditions (1)

Storage

- Proper storage & containment (Waste Framework Directive)

Contingency

- Emergency plan
- Training of staff
- Notification to MEPA

Waste

- Appropriate disposal/recovery
- Consignment note procedure (LN 337/01 – LN 184/11)
 - TFS permit for export
- Registered waste carriers: LN 106/07
 - Record keeping

Air

- Abatement systems (e.g. filters, scrubbers)
 - Height of stacks
- Substitution of certain VOC solvents: LN 225/01
- Maintenance of boilers & generators, correct fuels: LN 159/02
 - Monitoring from boilers & scrubbers

INSTALLATION

Noise & vibration

- Attenuation (if necessary)
- Testing of alarms at reasonable hours

Effluent

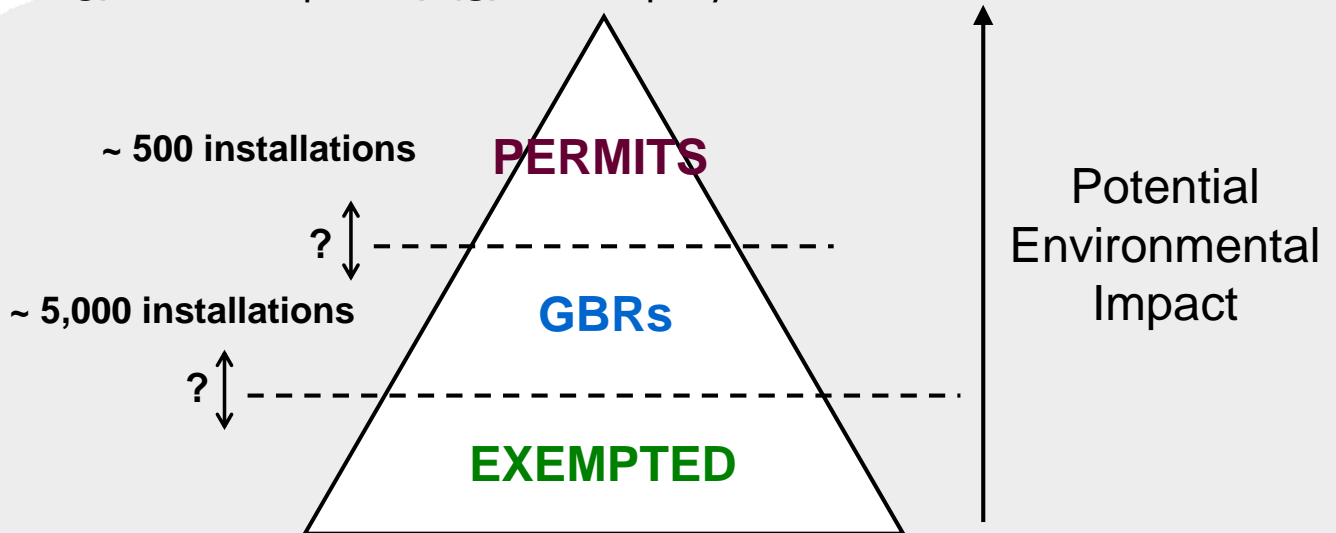
- Treatment
- Recovery/minimisation encouraged
- Discharges to sewer need sewer discharge permit: LN 139/02

Permit conditions (2)

- Annual environmental report:
 - Waste transfers
 - Monitoring records
 - Fuel use
- Possibility for phased improvement programme
- **Monitoring:** MEPA has compiled a database of companies who provide environmental services: www.mepa.org.mt/environmentalpermitting-monitoring
- Permit normally valid for up to **4 years**
- Site visits

Regulated Sectors

- Twinning Light projects (2007 & 2008): NSO data analysed by category
- 165 NACE classes (out of 521) of environmental significance (5,100 enterprises; 43,110 employees)



Classes of activities (thresholds may apply)

Priority 1* (highest risk)

- COMAH (Seveso) establishments
- Fuel terminals
- Container terminals
- Shipyards
- Batching and asphalt plants

Priority 2 (medium risk)

- Manufacturing plants with >250 employees
- Chemical & pharmaceutical plants
- Marinas, airports
- Hospitals
- Fish farms

Priority 1 (legal obligations)

- Waste management activities, e.g. scrapyards, inert landfills, waste transfer stations, waste oil producers, abattoirs
- Quarries
- Petrol stations
- VOC solvents activities, e.g. printing, surface coating, drycleaners
- Activities with a discharge to sea
- Sewage treatment (size threshold)

Priority 3 (lowest risk)

- Manufacturing, e.g. wood, machinery, plastic, rubber, electronic products
- Food & beverage manufacturing
- Seaports
- Hotels with more than 400 bed spaces

IPPC Permits issued under the Industrial Emissions Directive – as of 2016

Category as per IED (Schedule 1)	Sector	Permit issued	Permit determined but not issued	Permit being processed	Variations/ renewals being processed
5	Waste management	9	1	7	-
1	Energy sector	2	-	-	2
4	Pharma sector	4	-	-	2
4	Chemical sector	2	1	-	1
6	Animal Husbandry	-	-	1	-
Total		17	2	8	5

Facilities covered by EPs (2016)

- Permits issued for **141** companies, including waste management facilities, hotels, laundry and dry cleaning facilities, printing presses, various manufacturing plants (manufacturing beverages, toys, rubber products, chemicals, pharmaceuticals), quarries
- **142** installations with applications for environmental permit currently being processed

Type of activity	Permit Issued	Applications being processed	Outstanding (yet to permit)
Pharmaceutical manufacturing/ tableting	6	2	0
Waste Management	46	4	0
Chemicals (manufacturing and storage)	3	5	?
Batching Plants/ Tarmac Plants	2	3	- 40
General Manufacturing & Miscellaneous	16	5	?
Hotels	5	8	?
Metal processing facility (Waste Management)	7	1	0
Sewage Treatment Plants	3	1	0
Sea Terminals/ marina	3	6	<5
Fuel Terminals	2	7	0
Container Yards	2	1	<5
Shipyards/ boatyards	2	4	<5
Printing (VOC)	1	2	<5
Vehicle / Aircraft Repair	2	3	?
Discharges to Sea	1	5	?
Dry-Cleaning	11	3	0
Petrol Stations	2	25	57
Quarries	27	46	0
Slaughterhouse	/	2	1
Laboratory Complex	/	1	0
Mushroom Farm	/	1	<5
Hospitals	/	5	- 8
Aquaculture	/	1	9
TOTAL	141	142	-217

GBRs issued under L.N. 106 of 2007

GBR Number	GBR sector	Received	Valid Registrations	Expired/ withdrawn	validated/pending info
12	Waste Carriers	8560	4310	4250	0
13	Waste Brokers	155	69	86	0
14	Farms & Animal Husbandry	236	5	36	195
15	Hospital Services	8	0	1	7
N/A	Additional GBRs in accordance with LN 106/07	20	0	20	0
Total		8979	4384	4393	202

GBRs Approved by MEPA Board for PC

GBR Number	GBR sector	Received	Valid Registrations	Expired/ withdrawn	validated/pending info
1	Hotels and restaurants	39	4	8	27
2	Construction	3	0	0	3
3	Engineering	6	0	2	4
4	Food processing	24	2	5	17
5	Electronics	2	0	2	0
6	Furniture	7	0	3	4
7	Rubber, plastics, ceramics	2	0	2	0
8	Printing	2	0	0	2
9	Mechanics	43	0	14	29
10	Clothing	2	0	0	2
11	Chemicals	3	0	0	3
16	Miscellaneous	23	0	7	16
17	Hull Cleaning	4	1	3	0
18	Site remediation	1	0	0	1
Total		161	7	46	108

GBR Number	GBR sector	Received	Valid Registrations	Expired/ withdrawn	validated/pending info
19	Mobile road tankers	1	0	0	1
20	Labs	4	0	3	1
21	Industrial Complexes	8	0	3	5
22	Cargo Handling	1	0	0	1
23	Mushroom Farms	5	0	0	5
Total		19	0	6	13

Totals

	Received	Valid Registrations	Expired/ withdrawn permits	validated/pending info
Total (excluding waste carriers and waste brokers)	444	12	109	323
Grand Total	9159	4391	4445	323



Thank you

Maltese Industry

How **GREEN** can we paint it?

David Xuereb
13th April 2016



The **IMPACT** of Business on the Environment can be :

- Negative
- Neutral
- Positive



The Main Players:

- The Institutions
- The Business Enterprises
- The Citizens



The Main Objectives:

- Incentives
- Regulation
- Education



ENERGY

WASTE

WATER

INDUSTRIAL EMISSIONS

Directive
27/2012/EU

Directive
2008/98/EC

Directive
2000/60/EC

Directive
2010/75/EU

ENERGY: 20% energy reduction by 2020, e.g. through energy audits and financing of new facilities for SMEs

WASTE: waste prevention, recycling and reuse

WATER: framework for the protection of inland surface, transitional waters, coastal waters and groundwater

INDUSTRIAL EMISSIONS: atmospheric pollution, noise emissions etc. + principle of emission trading

Manufacturing Industry

Monitor energy consumption + costs; Energy audits

Building Industry

Design Coordination and Sustainability Standards

Beverage producer

Optimise liquid waste treatment processes

IT company

Dispose of old computers by returning them to the supplier, who will recycle them

Pesticide producer

Recycling system to reduce emission



The Circular economy – Greening the Industry

- 99.8% of private companies in the EU are SMEs and responsible for 2/3 of the employment in the EU27
- *Circular economy?*
Production, consumption and trade will imply lower environmental and health impact; improved prosperity
- Reduction of use of fossil fuels, raw materials, water, land, pollutants etc.





The Champions of the Green Circular Economy

- 40deg C difference in temperature
- Local product
- Basic technology
- Local expertise
- Reusable
- Zero Carbon footprint

Can this experience motivate the Maltese Industry and Economy?

How **GREEN** can we paint it?



The Green Industry – The Green Jobs

- Renewable energy and Energy conservation
- Green buildings
- Sustainable transport
- Water management
- Waste management
- Land management





Development Management



Architectural Design



Structural & Civil Engineering



Integrated Building Services Engineering



Interior Design



Conflict & Dispute Resolution



Technical Design Management



Project Management



Valuations & Cost Management



Sustainability Management



Facilities Management



A Work Plan

Stage 0

Strategic Definition



Stage 1

Preparation and Brief



Stage 2

Concept Design



Stage 3

Developed Design



Stage 4

Technical Design



Stage 5

Construction



Stage 6

Handover and Close Out



Stage 7

In use



Medina Tower, Tripoli



5 star Hotel Khartoum



Green Roofs – Earthscrapers!



THE MALTA CHAMBER
OF COMMERCE,
ENTERPRISE AND INDUSTRY



Regeneration



AR SE BS ID
DM PM CM CD

THE MALTA CHAMBER
OF COMMERCE,
ENTERPRISE AND INDUSTRY



' thank you? '





EU Producer Responsibility Legislation: Implementation in Malta

Kevin Mercieca



Structure of Presentation

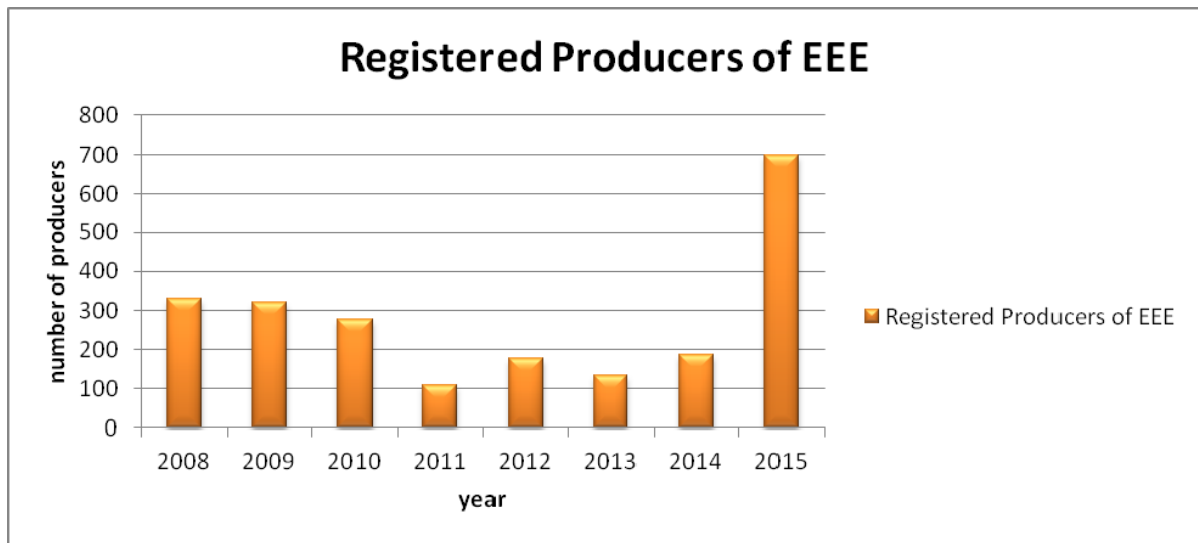
- What is EPR - extended producer responsibility ?
 - How are EU Directives put into force in Malta?
 - Focus on WEEE;
 - Focus on Packaging;
 - Focus on Batteries;
 - Information available on ERA website; and
 - Concluding remarks.
-

- **What is Extended Producer Responsibility?**
 - In line with the polluter pays principle the generator of waste is normally responsible for its management (i.e. consumer);
 - Concept of EPR is to extend the main responsibility on the manufacturer and distributor (i.e. Producer);
 - Ultimately it is always the consumer who bears the final cost.
 - **Why place the obligations on the producer?**
 - Many factors are not in the control of consumer (e.g. most design considerations: materials, ease of disassembly, etc.);
 - Economies of scale;
 - More control over making it easier and cheaper to recycle the product.
-

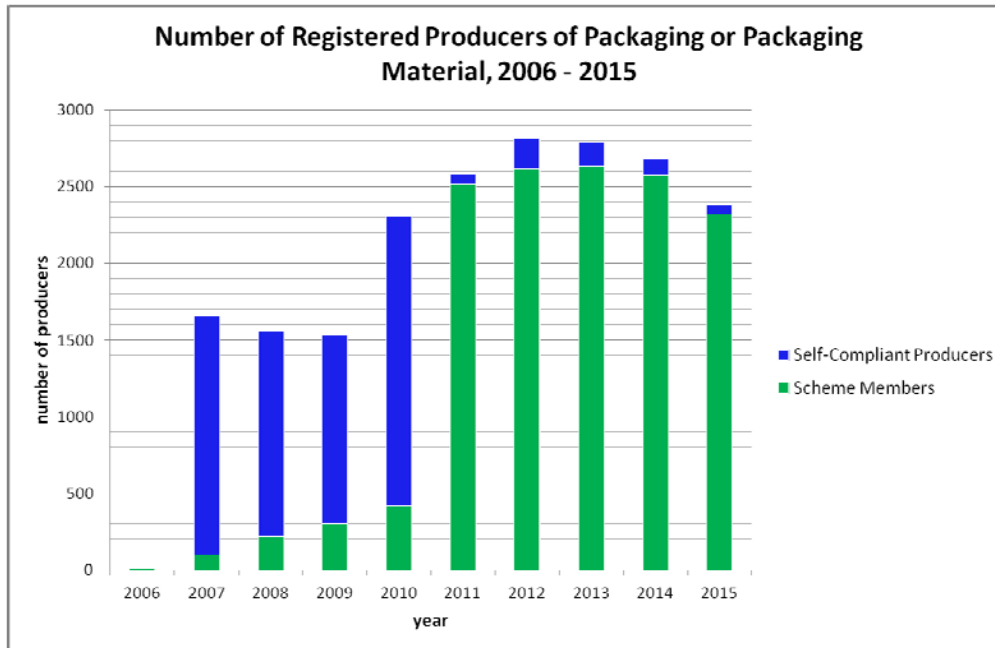
- **Who is the producer?**
 - Places on the market within customs territory of an EU Member State;
 - Places on the market for the first time;
 - Includes distance sellers.
- **What legislation is covered by EPR?**
 - EU legislation covers the following as mandatory EPR:
 - WEEE;
 - Batteries and accumulators ;
 - End-of-life Vehicles.
 - WFD allows other EPR regimes under National legislation, examples below:
 - Packaging and packaging waste;
 - Waste Tyres;
 - Waste Oils.

- How are EU Directives and concepts such as EPR, implemented in an EU member state like Malta?
 - When a Directive is issued Malta is given time (typically 18-24 months) to draft National legislation that implements the requirements of the Directive;
 - The process normally involves extensive public consultation:
 - Consultation with key stakeholders;
 - Public meetings – normally organised together with MEUSAC;
 - Information available on ERA website /
 - On major legislation we would normally have also carried out public consultation while the Directive is being formulated by EU institutions;
 - Finally after the approval of Government, a Legal Notice is issued and becomes part of National Legislation;
 - Affected industry and other stakeholders have many opportunities where they can submit their input, either directly or through bodies that represent them.
-

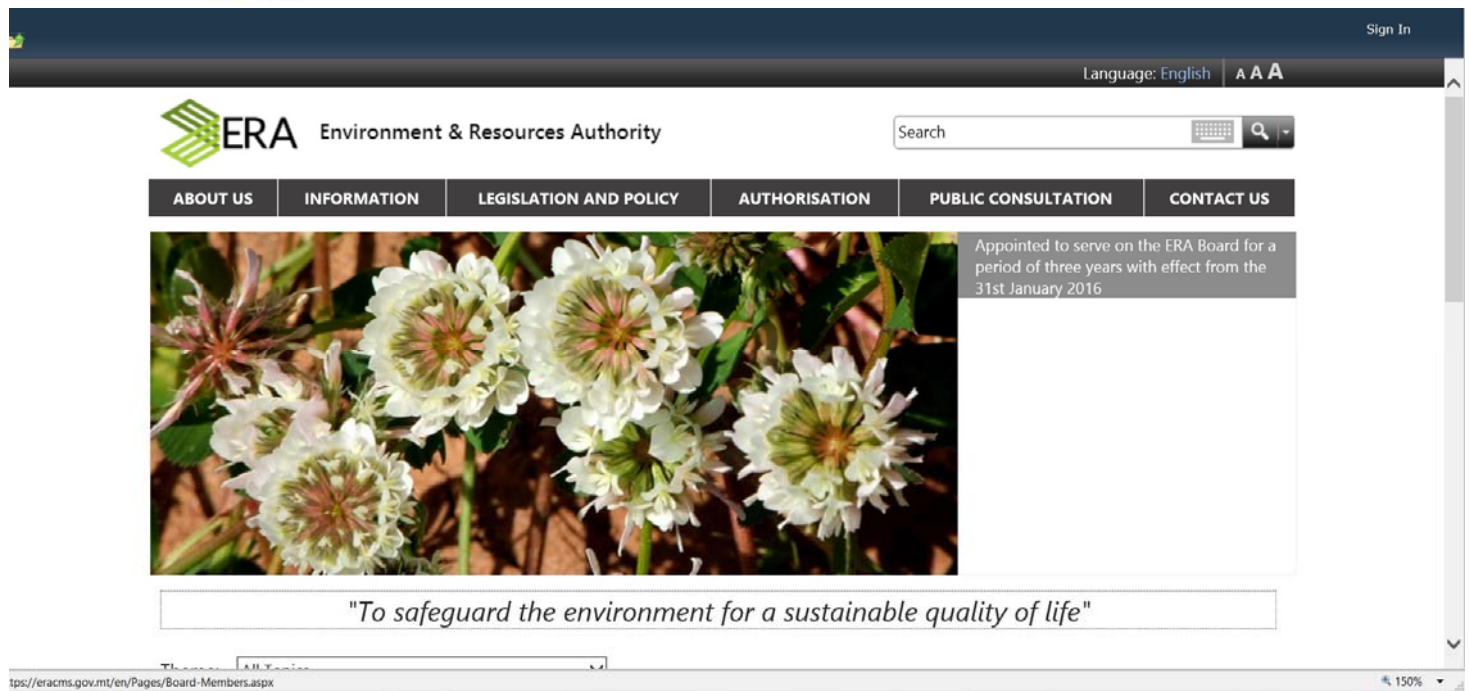
- Regulated by Directive 2012/19/EU;
- Transposed by SL 504.75;
- Maltese regulations last revised in 2015 following removal of Eco Contribution;
- Key obligations of Producers:
 - Collection rate of 42% of annual amount placed on the market ;
 - Annual registration/renewal with ERA;
 - Producers are responsible for taking back & recycling EEE free of charge ;
 - Producers are obliged to set up systems for the collection and recycling of WEEE either individually or by joining a collective compliance scheme;
 - Having a financial guarantee in place.



- Regulated by Directive 94/62/EC;
 - Transposed by SL 504.72;
 - Maltese regulations last revised in 2014 and are currently being revised again due to removal of Eco Contribution;
 - Packaging EPR regime is based on the WEEE regime however with some national specificities such as:
 - Differentiation between consumer packaging and back-end store packaging;
 - De-minimis (exemption from registration for placing <100kg);
 - Different treatment of distance sellers;
 - Registration process and financial guarantee is different (currently being revised).
 - Key obligations of Producers:
 - Registration as Packaging producers;
 - Declaration of the amounts put on the market;
 - Setting up own system to collect & recycle or join a scheme for back-end store packaging;
 - Join a scheme for all consumer packaging.
-



- Regulated by Directive 2006/66/EC;
- Transposed by SL 504.91;
- Maltese regulations last revised in 2015 and may need to be revised again in the eventuality of removal of Eco-Contribution;
- Key elements of the Directive:
 - Measures for establishing schemes aiming at high level of collection & recycling of batteries (very similar to WEEE obligations);
 - Sets minimum rules and makes provisions with regard to labelling and design.
- This is an area where more work needs to be done to be fully in line with EU Directive requirements.



The screenshot shows the ERA website interface. At the top right, there is a 'Sign In' link and a language selector set to 'English'. Below this is a search bar and a navigation menu with the following items: ABOUT US, INFORMATION, LEGISLATION AND POLICY, AUTHORISATION, PUBLIC CONSULTATION, and CONTACT US. The main content area features a photograph of white flowers and a text box stating: 'Appointed to serve on the ERA Board for a period of three years with effect from the 31st January 2016'. Below the image is a quote: 'To safeguard the environment for a sustainable quality of life'. The browser address bar shows 'https://eracms.gov.mt/en/Pages/Board-Members.aspx' and the zoom level is set to 150%.

Concluding Remarks

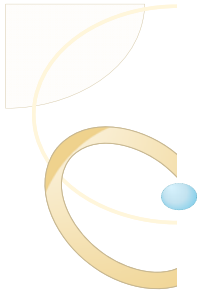
- Industry must inform itself to ensure compliance with regulations if they fall under the definition of producer:
 - In cases where affected products are manufacturers or importers for re-distribution;
 - Also in cases where products are imported for own use (such as packaging of raw materials used by any manufacturers).
- ERA also supports companies who are ISO 14001 or EMAS certified and exempts them from audits;
- This is also an open invitation for anyone who has difficulties with EPR to contact ERA for more information; and
- Important ERA contact email addresses:
 - weee@era.org.mt
 - packaging@era.org.mt
 - batteries@era.org.mt



End of Presentation

Thank you for your attention

Kevin Mercieca



Energy Efficiency Directive and Industrial Energy Auditing

Ing. Ch. Buttigieg

^a Sustainable Energy and Water Conservation Unit,
Ministry for Energy and Health, Luqa, Malta
charles.buttigieg@gov.mt



13.04.16

C. Buttigieg– Energy Efficiency Directive & Industrial
Auditing

1



SEWCU

- Sustainable Energy and Water Conservation Unit (SEWCU)
- Established in the first quarter of 2014, through Legal Notice 50 of 2014.
- Agency responsible for energy and water policy within the Ministry for Energy and Health.
- Key focus areas include energy efficiency and renewable energy.



2

Energy Efficiency Directive

- Article 3: National energy efficiency targets
- Article 4: Long term building renovation strategies
- Article 5: Renovation of central government buildings
- Article 6: Public procurement
- Article 7: Energy efficiency obligations (or alternatives)

Energy Efficiency Directive

- Article 8: Energy audits and energy management systems
- Articles 9-11: Smart metering and billing
- Article 14: CHP and district heating and cooling
- Article 15: Energy efficiency in grids and demand response
- Article 16-17: Qualification, training and information
- Article 18: Energy service markets

SMEs & Energy Audits

- Regulation 10(5) of the Energy Efficiency and Cogeneration Regulations, 2014 – develop programmes to encourage SMEs to undergo energy audits.
- Regulation 10(8) of the Energy Efficiency and Cogeneration Regulations, 2014 – bring to the attention of SMEs, concrete examples of how energy management systems could help their busir



Non-SMEs & Energy Audits

- Regulation 10(9) of the Energy Efficiency and Cogeneration Regulations, 2014 - makes it mandatory that enterprises that are not SMEs (i.e. Non-SMEs) commission an energy audit.



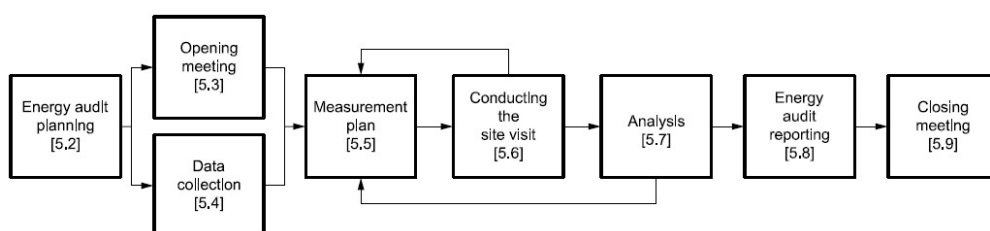
Quality of Audits

- Minimum criteria:
 - Be based on up-to-date, measured, traceable operational data on energy consumption and (for electricity) load profiles;
 - Comprise a detailed review of the energy consumption profile;
 - Build, whenever possible, on life-cycle cost analysis (LCCA) instead of Simple Payback Periods (SPP);
 - Be proportionate, and sufficiently representative to permit the drawing of a reliable picture of overall energy performance and the reliable identification of the most significant opportunities for improvement.
 - Energy audits shall allow detailed and validated calculations for the proposed measures so as to provide clear information on potential savings.
 - The data used in energy audits shall be storable for historical analysis and tracking performance.



Energy Auditing – ISO 50001 or EN 16247

- A detailed analysis of the energy performance of an organisation, equipment, system(s) or process(es).
- Based on appropriate measurement and observation of energy use, energy efficiency and consumption.
- Planned and conducted as part of the identification and prioritization of opportunities to improve energy performance, reduce energy waste and obtain related environmental benefits.



Tools for non-SMEs

- Certified Energy auditors and Energy Managers
 - GNI302 includes the registering of energy auditor and energy manager courses.
 - List of certified energy auditors and energy managers available on line.
- Guidance Note
 - A guiding document produced jointly by REWS and SEWCU.
 - Intended to guide non-SMEs and other enterprises in the discharge of the Energy Audit obligations pursuant to L.N. 196 of 2014.
- Template for Energy Audits
 - The use of the template is not mandatory but compliance with this template is an indication that sufficient detail has been submitted.

Key Recommendations

- Replacing of lighting especially where older T8 technology is still in use.
- Installation of presence detection sensors to control both lighting and air-conditioning as well as use of dimming devices in suitable areas.
- Improvements in the building envelope incl. use of solar films.
- Power management for PCs to go into a lower energy state mode.
- Increase employees energy awareness.



Barriers to EE – A study in the Hospitality Sector

- Resource Constraints
 - Time available to study, analyse and implement new Energy Efficiency projects is limited as most of the time available is taken up by routine and daily maintenance issues.
 - Energy Performance Contracting – Outsource tasks in EE to professionals for performance based remuneration.
- Knowledge of technologies
 - Not enough available information about the performance of case studies within the local scenario.
 - Some entities rely on proposals made to them by suppliers or information sent to them by the mother company. Information may not be replicable in the local scenario.
 - Best practice sharing events.

Post Energy Audit Exercise

Voluntary Agreements - SEWCU and Non-SME;

Pivotal importance of MBB;

Industry

- Commit to Energy Efficiency
- Implement cost effective measures

SEWCU

- Official Recognition + Logo
- Information on upcoming EE related schemes



EEPI

Energy Efficiency Partner Initiative

Post Energy Audit Exercise

- 18 Voluntary Agreements signed
 - First Round -

Carlo Gavazzi (Malta) Ltd	Malta Freeport
Methode Electronics (Malta) Ltd	Playmobil (Malta) Ltd
ST Microelectronics	Toly Products Ltd
Bank of Valletta	Trelleborg Sealing Solutions (Malta) Ltd
HSBC	Besedo
EneMalta plc	AX Holdings
Water Services Corporation	Eden Leisure Group
Foster Clarks Products Ltd	De La Rue Currency and Security Print Ltd
Baxter Ltd	Group 4 Services

Further Tasks

- Second of Voluntary Agreements;
- Addressing SMEs

Conclusions

- Energy auditing is an opportunity to improve the enterprise's operation.
 - Non-SMEs should not consider energy auditing as a compliance exercise.
 - Energy auditing is a good basis which can lead to energy savings.
 - Implementation of energy efficiency measures which make a good business case will result in energy savings which translate in increased profits.

Thank you



Greening the Industry in Practice

13th April, 2016

Denise Ann Buhagiar

Site Environmental Champion, STMicroelectronics Malta



Introduction 2

“Greening the industry” is a process by which an activity, product, or service is made more environmentally friendly

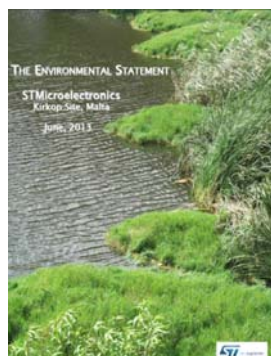
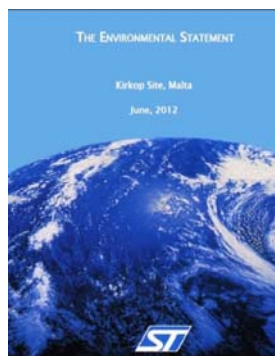
How is STMicroelectronics Malta greener? 3

- Environmental standards - *EMAS, ISO14001*
- Other compliance obligations - *Environmental permits, EHS Decalogue*
- Voluntary activities - *STSR Committee, competitions*
- Energy-efficient and water-saving measures - *upgrading of highly energy efficient equipment, automation, new technologies, water saving measures*
- Life-Cycle Assessment – *raw materials, manufacturing, distribution, use and end-of-life*



EMAS Certification (Eco-Management Audit Scheme) 4

- STMicroelectronics Malta is the only EMAS certified company in Malta, since 1995. *In Nov 2015 we won a special award from the EU as a national pioneer*
- EMAS is a voluntary EU scheme, requiring an initial environmental review, legal compliance, publication of an environmental statement, and establishment of a dialogue with the public
- Examples of other benefits: Exemption for ISO 50001 and for Packaging Waste and WEEE audit, participation in EU conferences and networking



- STM Malta certified since 1997
- Vital requirement from customers
- Examples of other benefits: set-up of an EMS, have top management committed to EMS, act as a driver for continual improvement in environmental performance, easier introduction of other environmental audits, certificate serves as exemption for Packaging Waste and WEEE audit

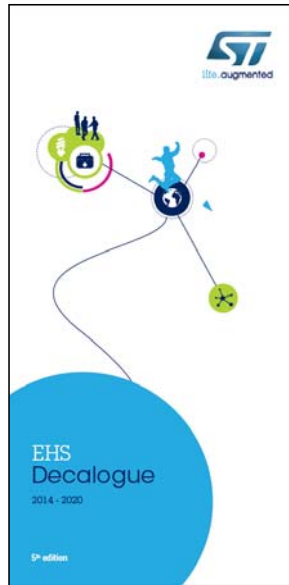


Environmental Permits

- STMicroelectronics Malta holds ERA (MEPA) Environmental Permit, various other permits (eg. commercial filling site), WSC permit
- Examples of benefits: satisfies legal compliance, specific conditions laid out for compliance, reduced inspections, good relationship with regulatory agencies



- Corporate STMicroelectronics periodically issues EHS Decalogue with details on how environmental performance will be improved
- Examples of benefits: environmental priorities easily identified and communicated with stakeholders



ST Socially Responsible committee activities



- Examples of activities: Sponsor of trees, EHS weeks for employees, voluntary work with waste and biodiversity themes, collection of selected waste from home, clean-up activities, support student placements studying environment, participate in local and international competitions, organise environmental competitions for employees, participate in seminars

Examples of activities

9



- Examples of benefits: excellent CSR, networking and stakeholder engagement.

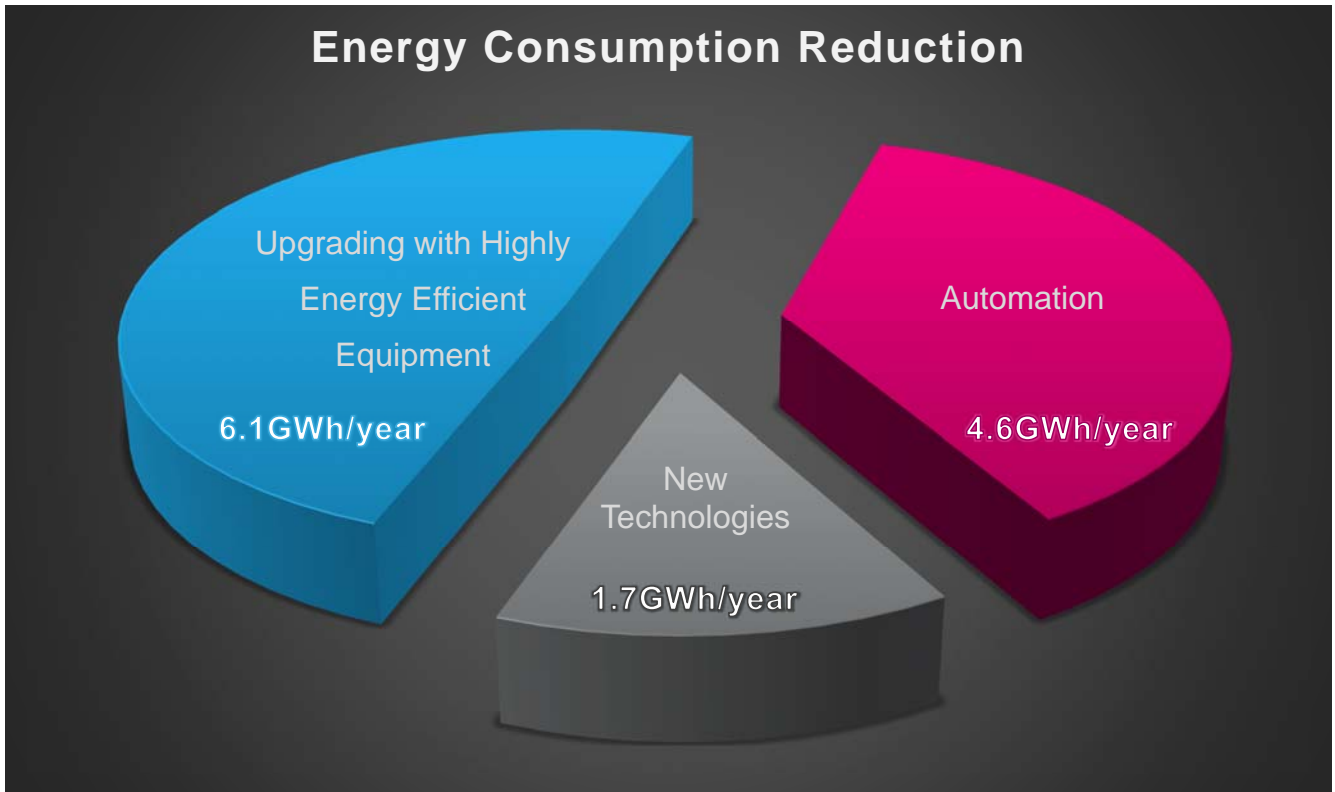


Competitions

10

- STMicroelectronics Malta has won several competitions, including 1st prize in Sustainable Enterprise Award (2015) and special award in Environment Award for Industry (2016)
- Examples of benefits: improves employee moral, win funds for environmental projects, networking opportunities, serve to keep environmental improvements up-to-date



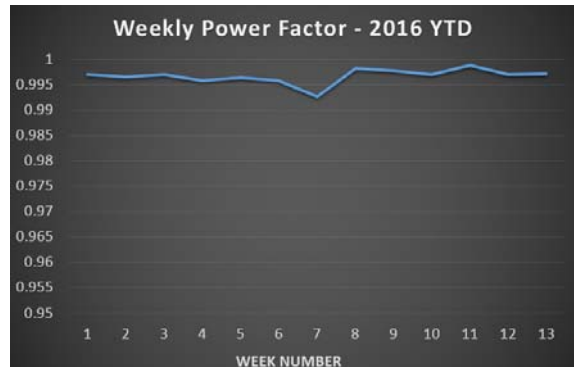
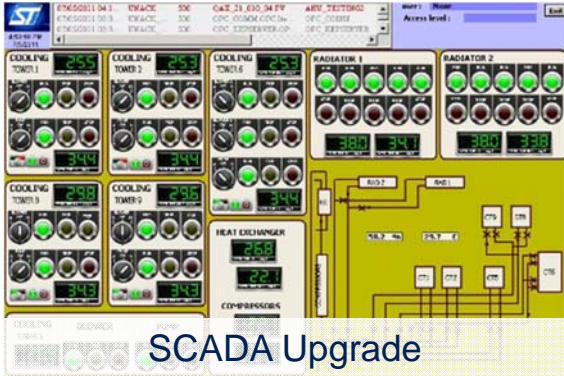


Upgrading with Highly Energy Efficient Equipment



Increased Level of Automation

13



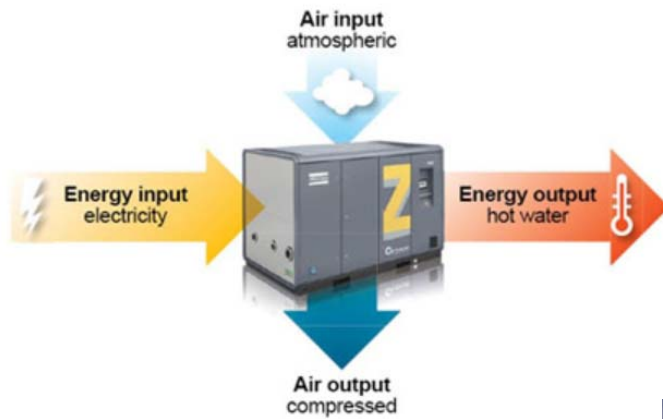
New Technologies

14



Reuse of waste energy at ST

15



ST requires around 1MW of heating during Winter.

All energy is recovered from air compressors waste heat.

Exploit low energy process cooling possibilities.



Water saving measures

16

- STMicroelectronics Malta has on-site water microfiltration plants for the recycling and purification of industrial wastewaters; a plating water recycling plant for further recycling of industrial wastewaters, and a reverse electroplating plant for removing metals from the wastewater
- Following an increase in production, an additional microfiltration plant was installed to reach again a recycling rate of 80%



Discover the environmental footprint of a MEMS

Select the environmental indicator



Climate change



Water demand



Freshwater eutrophication



Photochemical oxidant formation

Results



Total impact 0,34 g NMVOC



or 1,1 km by car



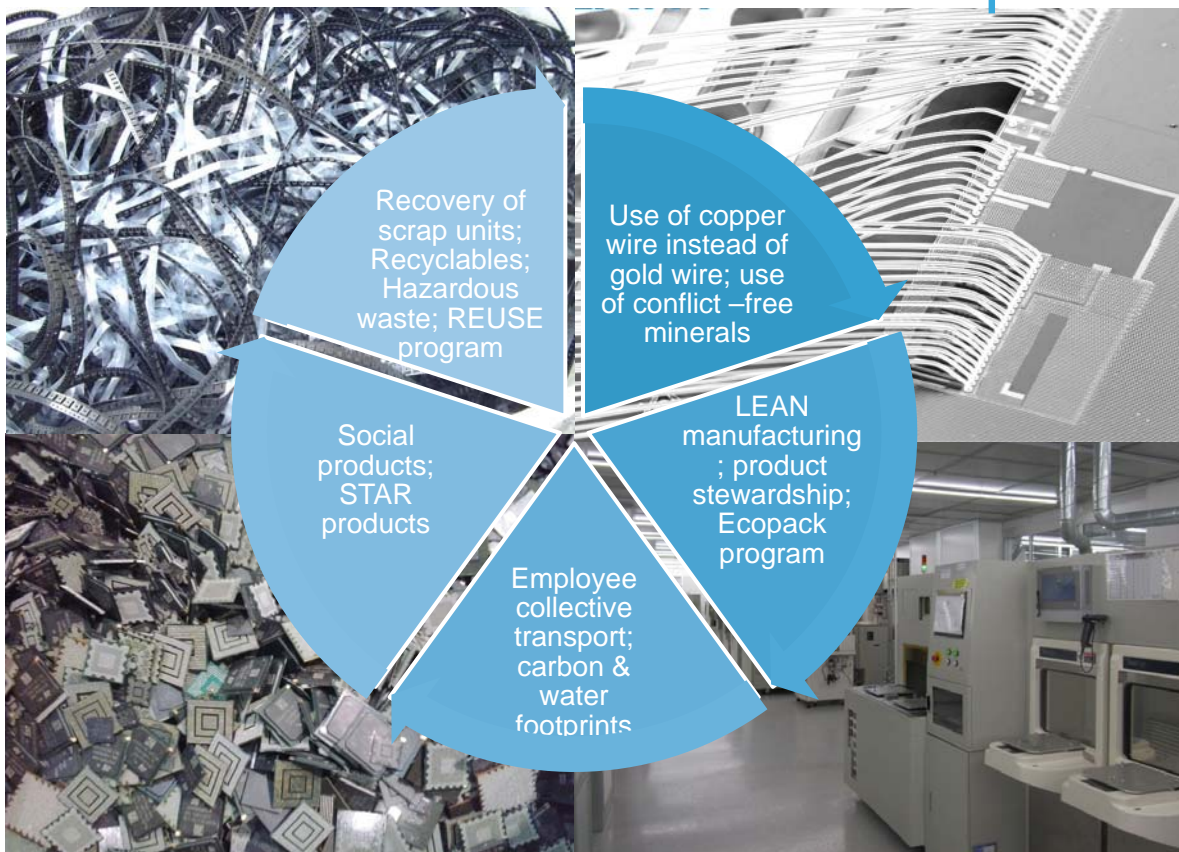
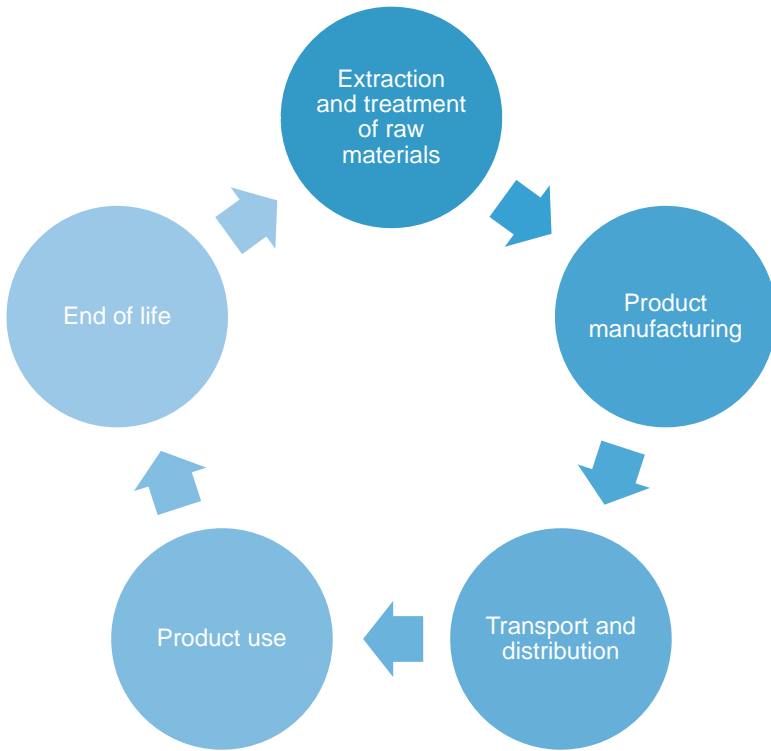
Click on the square to discover the footprint of each life cycle stage



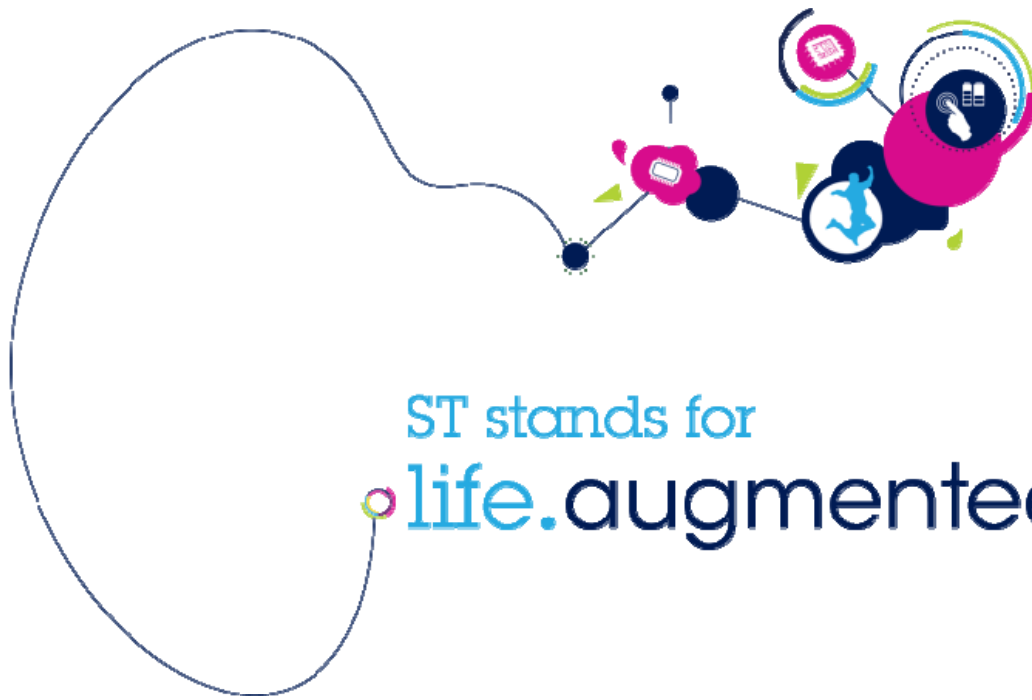
5 life cycle stages

- Raw materials
- ST production site
- Transport i
- Use
- End-of-life i

The raw materials and the ST production site are the major contributors to all the considered impact categories. Together, they represent more than 90% of all the impacts.



Thank you!





The Case for Environmental Sustainability in the Pharmaceutical Manufacturing Industry

Daniela Cauchi



Agenda

- 1 What drives environmental sustainability in an organisation?
- 2 How is this implemented at Actavis?
- 3 Environmental initiatives implemented at Actavis Malta Operations

What drives environmental sustainability within an organisation?

A range of terminology is used to place the context of sustainability within the Business scenario

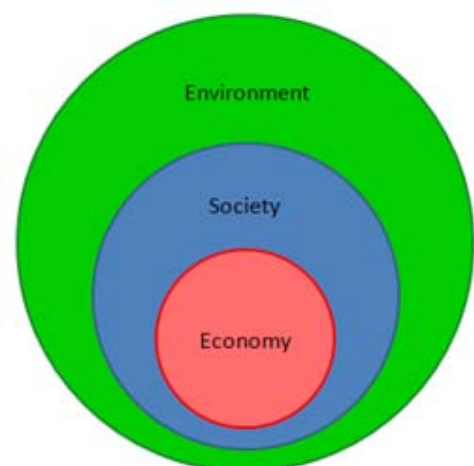
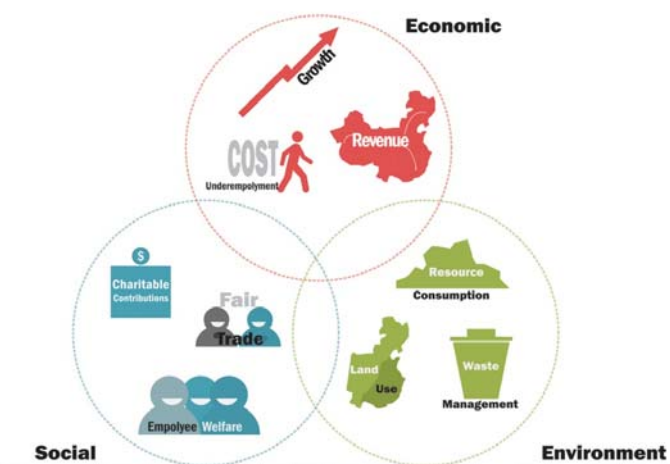


Triple Bottom Line

3

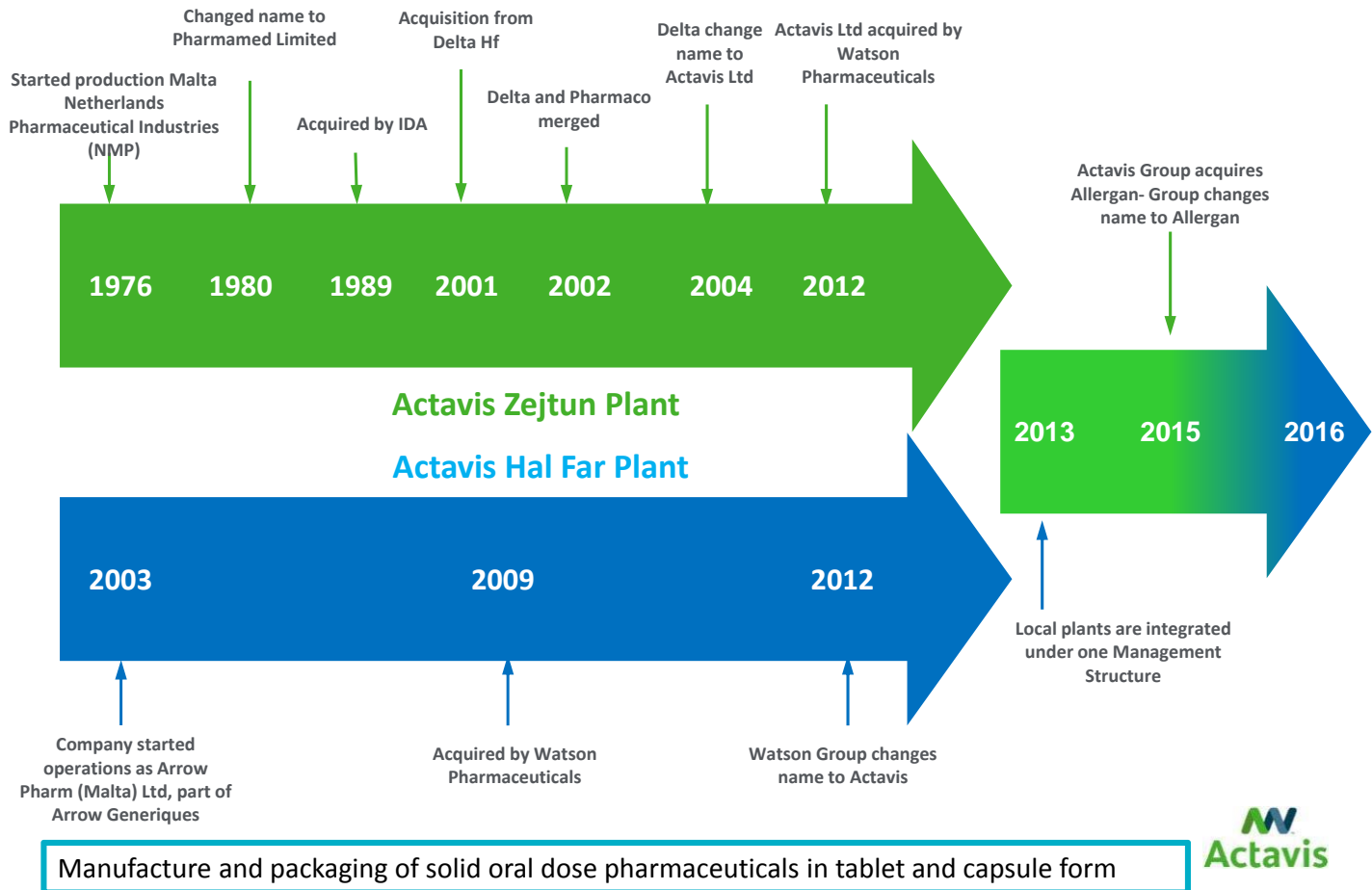


What drives environmental sustainability within an organisation?



Managing today while preparing for tomorrow in ways that sets the business up to be resilient in light of changing conditions.

Introducing Actavis



The Case for Sustainability at Actavis

The main drivers for implementing an environmental sustainability programme at Actavis are :

- Strong Corporate EHS Culture requiring participation in Group Wide EHS Programs
- Management commitment and focus
- Regulatory Compliance
- Cost Reduction e.g. through energy saving initiatives
- Protection of Company Reputation

In the Actavis Malta Strategic Plan, EHS has been identified as one of 5 Strategic Pillars of the organisation, together with Quality, Financial Performance, Customer Service and Talent Management with the result that

- EHS Key Performance Indicators (KPIs) form an integral part of the Company Management Scorecard
- EHS review is incorporated in all major aspects of the operations including new projects, developments and operational changes.

Environmental Health & Safety Policy

Actavis Malta Operations is committed to manufacture pharmaceuticals in a safe and responsible manner that protects the environment, and promotes the health and welfare of employees and the communities we operate in.

In support of this commitment, our operations will be driven by 4 main principles:

- WORKPLACE SAFETY

Provide a safe and healthy workplace, taking every reasonable precaution to prevent injuries and ill health.

- ENVIRONMENTAL SUSTAINABILITY

Prevent pollution by employing innovative processes, equipment, materials and technologies that contribute to a more environmentally sensitive Actavis.

- CONTINUOUS IMPROVEMENT

Setting and monitoring EHS goals and performance to drive continual improvement.

- COMPLIANCE

Implement effective management systems that ensure compliance with all applicable EHS regulations and other requirements.

Health, safety and environmental sustainability are the responsibility of every Actavis Malta Operations employee. Actavis Management will ensure that workplace safety and environmental protection is deeply engrained within the employee culture.

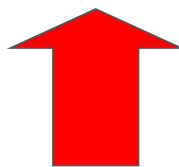
Actavis Malta Operations is committed to communicate its environmental health and safety policy to its employees, customers and suppliers and, as far as it is practicable, to the general public.



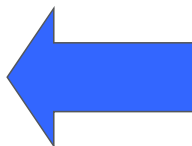
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Environmental Aspects

Air



Water



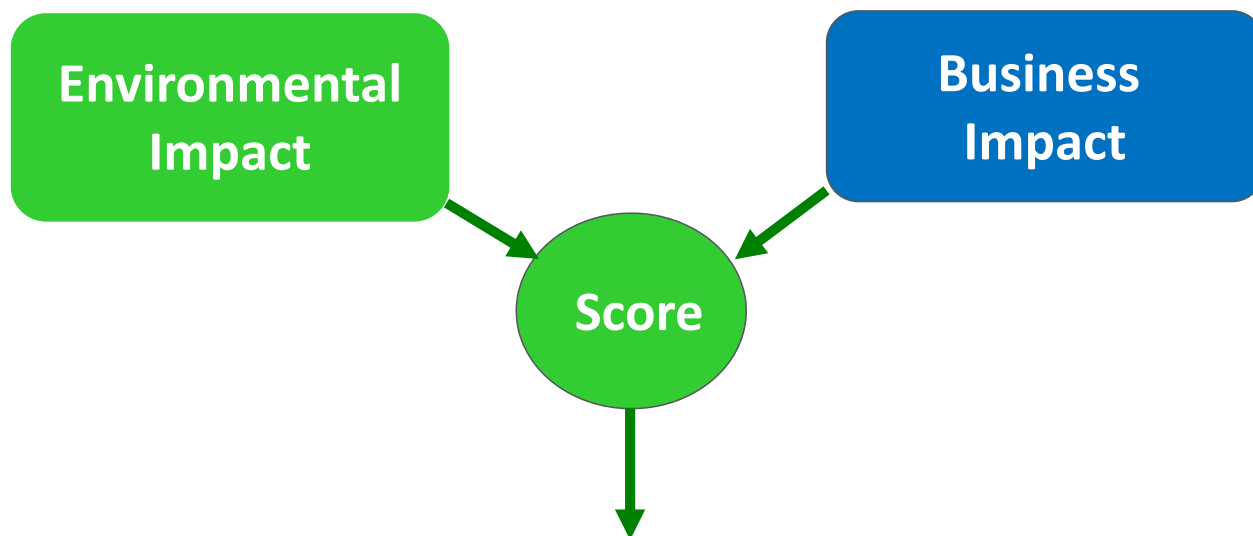
Waste



Land



Environmental Aspect Assessment



Environmental Aspect Assessment is used as a basis for the setting of the company's Environmental Objectives and Targets



Environmental Sustainability Initiatives

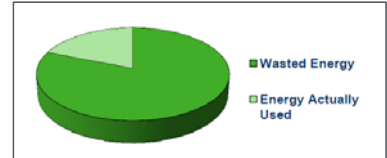


Energy Conservation and Renewable Initiatives



Pilot Project - Generation of Thermal Energy from Solar Power – fed into Factory Steam System

Installation of Intelligent Lighting within Warehouse areas



Analysis:

	Without motion sensors	With motion sensors	Savings
1 fluorescent tube:	0.028kWh	0.028kWh	
No of tubes:	54	54	
Hours switched on p.a.:	4784hrs	910hrs	
Power consumed p.a.:	7233.41kWh	1375.92Wh	
Total Cost p.a.:	1061.14€	201.85€	859.29€

% Saving = 80.98% (for HF63 warehouse)



Installation of timer for intermittent use of canteen toasters

Centralised control of AC Temperature in offices



Energy Conservation and Renewable Initiatives



Installation of Dewpoint Dependent Switching on Dessicant Driers



Installation of Solar Water Heaters supplying hot water to the changing rooms

- Replacement of Chillers to ones with Improved Efficiency
- Installation of Induction Lighting in Warehouse areas
- Application of Roof Solar Reflective Coating
- Installation of LED lighting on a Blister Packaging Line



Environmental Sustainability – Waste Management



Cardboard balers to reduce waste volume



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Actavis Canteen Waste Recycling

What can I Recycle?

YES!

- ✓ Empty Drinks Bottles
- ✓ Empty and Clean Food Containers
- ✓ Plastic Lids and Bottle Caps
- ✓ Clean Yoghurt Cups
- ✓ Clean Plastic Food Wrappers
- ✓ Dried Food Bags (without aluminium)

NO!

- ✗ Jablo cups
- ✗ Used cling film
- ✗ Contaminated wrappers and food containers
- ✗ Crisp packets
- ✗ Containers that are not empty
- ✗ Paper towels

Waste Segregation of different Waste Streams



Environmental Sustainability – Waste Management



Laboratory Liquid Waste Segregation and Collection System



Construction of a Dedicated Liquid Hazardous Waste Storage Area



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Environmental Sustainability – Secondary Containment



Solvent Storage with secondary containment, fire detection



Laboratory Chemical Storage Areas with integrated Spill Containment



Replacement of Diesel Day Tanks to ones with integrated containment complete with level control system and alarms.

Environmental Sustainability – Spill Control and Protection of Land



Spill Response System



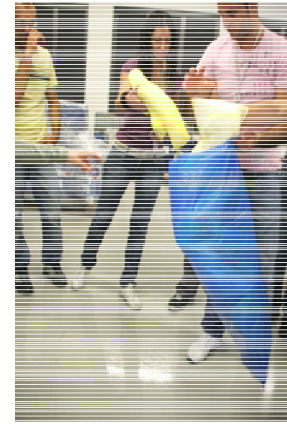
Installation of an Oil Water Interceptor in the Employees' Car Park



Environmental Sustainability – Training



Spill Response Training



Fire Warden and Fire Awareness Training

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Environmental Sustainability – B15 Warehouse

The Actavis B15 Warehouse Project was a construction project in which environmental considerations could be incorporated from a design stage.



- The building envelope was designed to minimize the energy necessary to maintain the required temperature and relative humidity.

- Solar thermal energy utilised to supply, hot water for sanitary facilities and the pallet wash area.



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Environmental Sustainability – B15 Warehouse

- An ESFR (Early Suppression Fast Response) sprinkler protection system was installed – the system was designed for the collection of fire water run off in a dedicated reservoir.
- Harvested rain water used for WC cisterns and for keeping a constant level in the fire water reservoir.
- The lighting systems controlled according to occupancy.
- T5 High Output Fluorescent High Bay lighting utilized in the high rise warehouse to facilitate control.
- The light system is connected to the Building Management System to facilitate control and time scheduling.



Strategic Value of EHS Performance

“As a strong proxy for management quality, EHS performance consistently correlates well with stock price performance.”



WHAT WE DO WHO WE ARE NEWS/EVENTS OUR THINKING CONTACT US

FAS
FACT



