

AAPA 2015 Marine Terminal Management Training Program

Sustainable Port Development and Operations

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Photo: Kat Janowicz

Make Money by Saving the Planet

Use Energy
Responsibly


3COTECH
Profitable Sustainability

Imagine

Dreaming of a perfect world



Photo: Rodion Kutsaev

A busy port scene with shipping containers and a vessel. In the background, there are stacks of green containers with 'AGREEN' and 'SHIP ONLY' markings, and blue containers with 'MAEER' and 'Safmar' logos. A white vessel with 'VESSEL' and 'APM TERMINALE' markings is visible. In the foreground, several seals are resting on a red surface.

Today's Ports

Balancing environmental challenges
with economic demands

Transportation



Big Ships **24,000 TEU** • Congestion to cost **\$7B** shipping delays in 2015
US ports to spend **\$46** billion in port improvements by 2017 •
84% goods moved by trucks • **\$101B** annual cost of road congestion in US •
\$900B goods transported to and from US annually by container ships

Green Ports



Since **2005** • **ZERO** emissions goal • originated by **POLB** and **POLA**
SOx **90% DOWN** • NOx **56% DOWN** • DPM **82% DOWN** •
2015 new MARPOL rules: sulphur content less than **0.10%** but no set sanctions •
Ports of Los Angeles & Shanghai launched **EcoPartnership** in 2014

Energy



Energy efficiency account for **60-75%** energy productivity increase since 1970 •
Saved **20M+ MWh** in 2012 (power to **2M** homes) • **10%** energy improvements
in commercial & industrial buildings = **\$40B** savings & **49M** vehicles off the road •
CA Shore Power compliance up to **80%** in 2020 • POLB **Energy Policy** of 2013

Planning



For every \$1B spent on projects **\$75M** is wasted due to ineffective communications
and **\$109M** due to poor project performance • **\$57T** global infrastructure investment
needed through 2030, including **\$0.7T** seaports, **\$4.5T** rail, **\$12.2T** power •
Ships to keep on board a **Ship Energy Efficiency Management Plan** (SEEMP)

Sources: ACEEE, AAPA, CARB, DOE, DOT, EIA, EPA, IEA, IMO, Kurt Salmon, OECD, McKinsey, PMI, POLB, POLA, WSJ.

Energy Focus

Seeking alternative energy sources to meet growing demands



Photo: Dmitry Sytnik

Energy Efficiency Alone is Not Enough

Planning strategically for energy sustainability



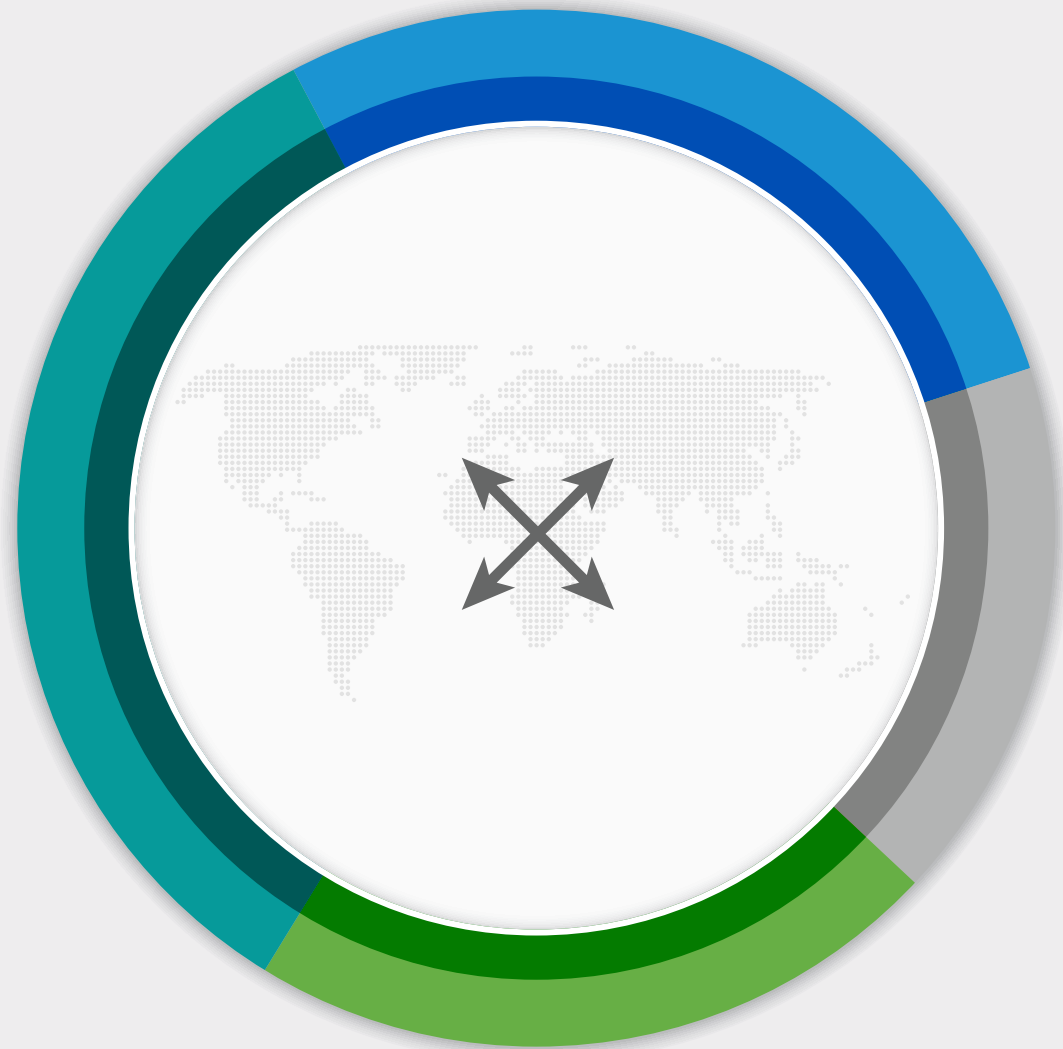
Photo: Sven Scheuermeyer



Energy Security

Mitigating risks and ensuring resiliency

Energy Goals and Priorities



IMPROVE
RESILIENCY



REDUCE
DEMAND



ASSURE
SUPPLY



PROMOTE
ENERGY
CONSCIOUS
CULTURE

Aiming for Uninterrupted Energy Flow

SUPPLY

DEMAND

Fuel Switching

Advanced Metering

Demand Response

Power Generation **SMART GRID**

Peak Management

DISTRIBUTED GENERATION

Energy Resources

Energy Efficiency

Energy Conversion *Transmission & Distribution*

Renewables **Human Behavior**

RENEWABLE AND CLEAN ENERGY

ENERGY CONSERVATION

Reduced Reliance on Petroleum

Cogeneration Microgrids

Combined Heat and Power

Reduce Energy Waste

Load Shifting



Energy, Water, and Environmental Sustainability

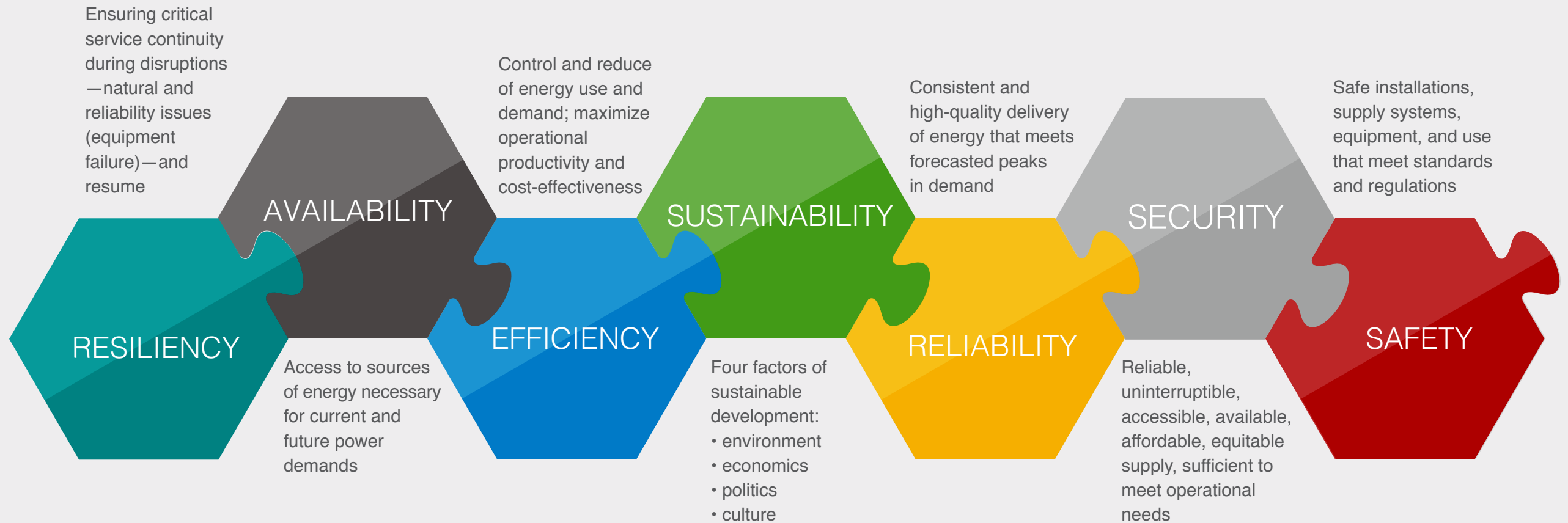
A person in a pink shirt and black pants stands on a rocky outcrop, looking out over a vast, scenic landscape. The landscape features a deep valley with a winding river or lake, surrounded by steep, forested mountains. The scene is bathed in the warm, golden light of a low sun, creating a dramatic and inspiring atmosphere.

Inspiration

What prompted me to start this business

Photo: Julia Caesar

Energy Drivers



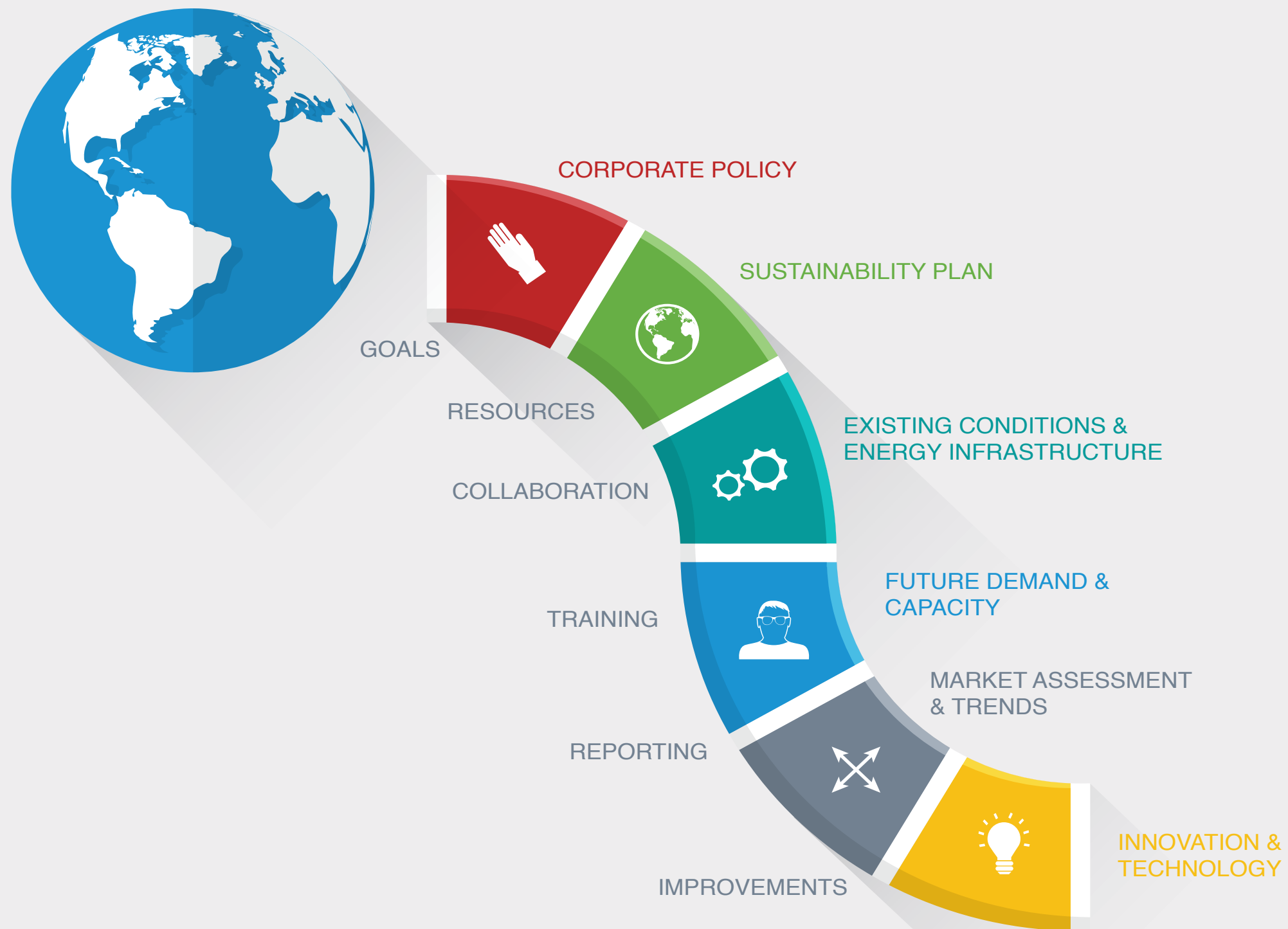
A man in a dark suit and glasses is seen in profile, looking out of a large window. His arms are crossed. The window reflects the city skyline. Outside the window, a vast urban landscape is visible under a bright sky, with numerous buildings and a prominent circular structure in the foreground.

Vision

Looking into the future

A world where businesses and policymakers understand the profitability and value that comes from responsible energy, water, and environmental sustainability planning.

Roadmap to Strategic Energy Planning





Keep It Moving

“Plans are useless, but planning is indispensable.”

Dwight D. Eisenhower

Thank you

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