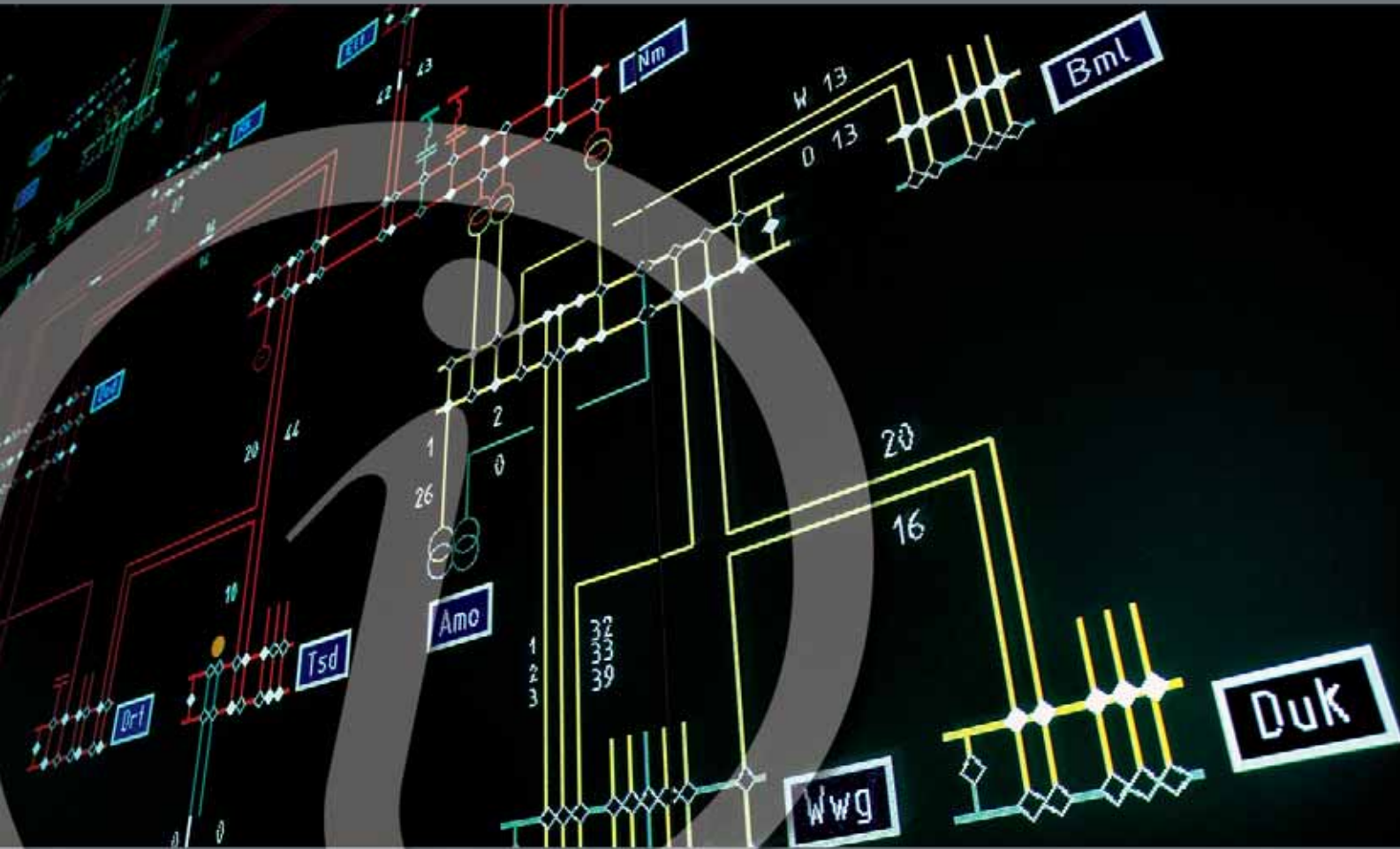


iUtilities



Dynamic multi-process
visualization and control

INTELLIGENT
INNOVATIVE
INTEGRATED
INTERACTIVE

BARCO

Visibly yours

All-in-one digital solution for managed process monitoring

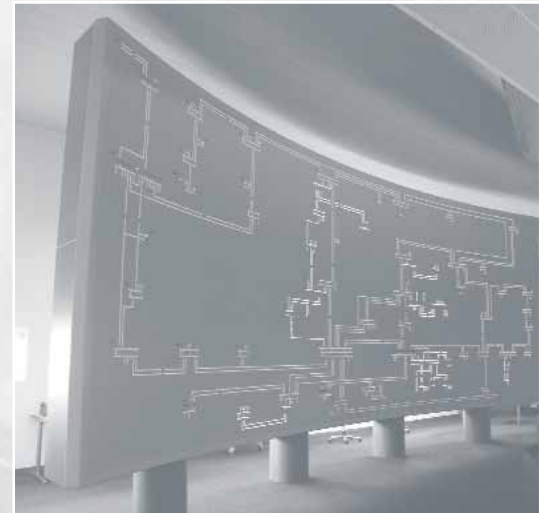
When it comes to providing the best tools for your operations, you don't want to make any compromises. Providing your operation staff with the best visualization tool allows them to monitor and control your processes in the most efficient and ergonomical way. Barco Control Rooms has a long-standing record as the most reliable supplier of visualization hardware for critical processes in the utilities (water, gas, electricity) and process industry (oil & gas, automation).

With iUTILITIES, Barco offers a total visualization solution which allows dynamic content showing process overviews (grids, pipes, valves), live video (CCTV camera's, vision cameras, weather channels), expertise systems, simulations and other critical information on one large overview display capable of handling thousands of pixels of data in a real-time matter without compromising your main processor performance.

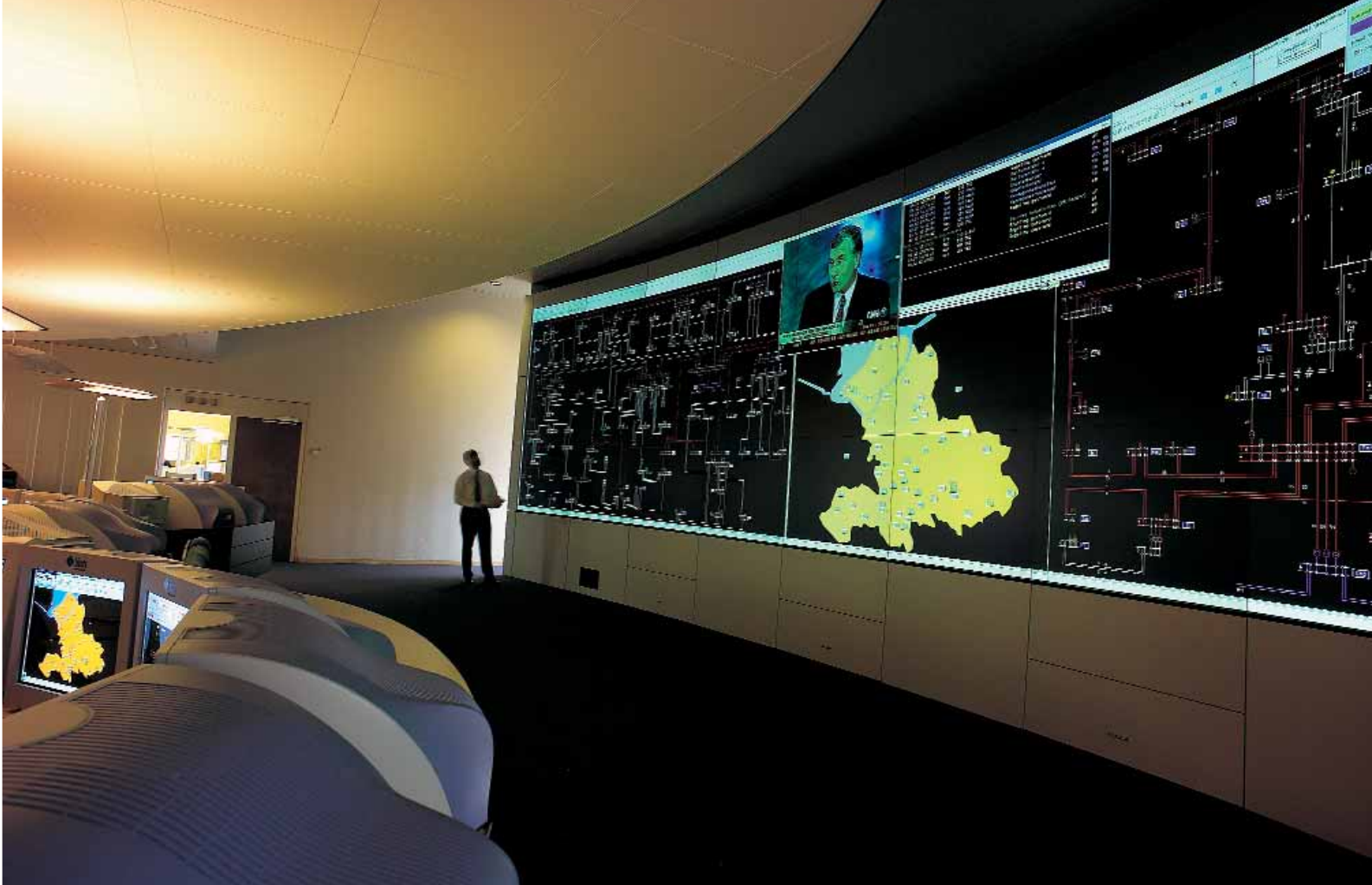
System operators benefit from the overview system as it gives the status of the process in one clear and real-time view without the need of browsing through different applications, windows or pages. Adding to this the power of digital maps, instant situational awareness is achieved by adding digital maps to the process overview.

iUTILITIES provides process control centers the ability to fully integrate visualization sub-systems into their process monitoring systems allowing flexible display content handling, enhancing performance and quality, cost and space savings, and external management of the visualization sub-system by higher level SCADA or DCS systems via Application Programming Interfaces (APIs).

Physically, iUTILITIES consists of a range of high-quality displays, Barco's display controller series and wall management software.

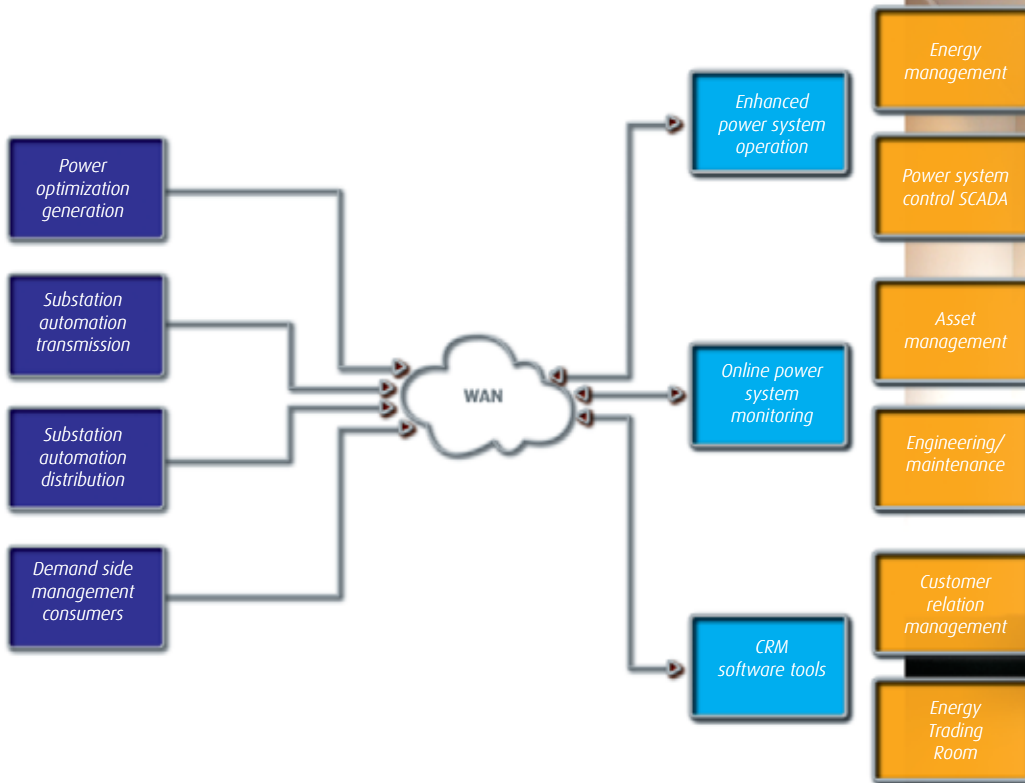


Barco's iUTILITIES replaces static mimic walls by dynamic content



- Designed for 24/7 operation
- Easy and cost effective maintenance
- Dynamic content handling
- Comprehensive product life cycle support
- Front or rear access to projection unit
- Reliable and full-redundant visualization solutions
- Process oriented solutions
- Dynamic real-time process visualization
- Distributed visualization
- Easy integration of video from CCTV systems or cable channels





Road to digital

To improve the overall technical and economical management of business processes, the industry is making the transition to digital solutions, using the corporate network as their major communication bus for their control systems.

The migration from analog to digital results in the following benefits:

- improved quality of service
- improved reliability
- reduced manpower requirements
- reduced operating costs
- improved information for engineering decisions
- improved information for planning decisions
- reduced customer outage time

Distributed control functions enable you to simultaneously show the status of your equipment, measured values, event lists and alarms, trends and measurements, sequenced control functions, system self-supervision status. Barco's APOLLO allows for intelligent lay-out management.

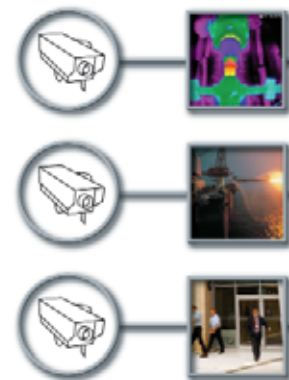
Information windows can be locked and intelligently programmed such that no window will cover any important information.

iUTILITIES has been the choice of system integrators as their visualization solution for their SCADA, DCS, DMS, EMS and other expert systems.

Such systems provide dynamic real time visual content for

- Power generation
- Transmission grids
- Distribution grids
- Water purification
- Water distribution
- Gas distribution
- Energy trading rooms
- Customer call centers

Sharing this content over a network accessible to all functional levels will add to the efficiency of the operation, especially in abnormal situations, factory break-downs or accidents. Using the main control centers as main press center and public relation center will also add to corporate efficiency.



Camera sources



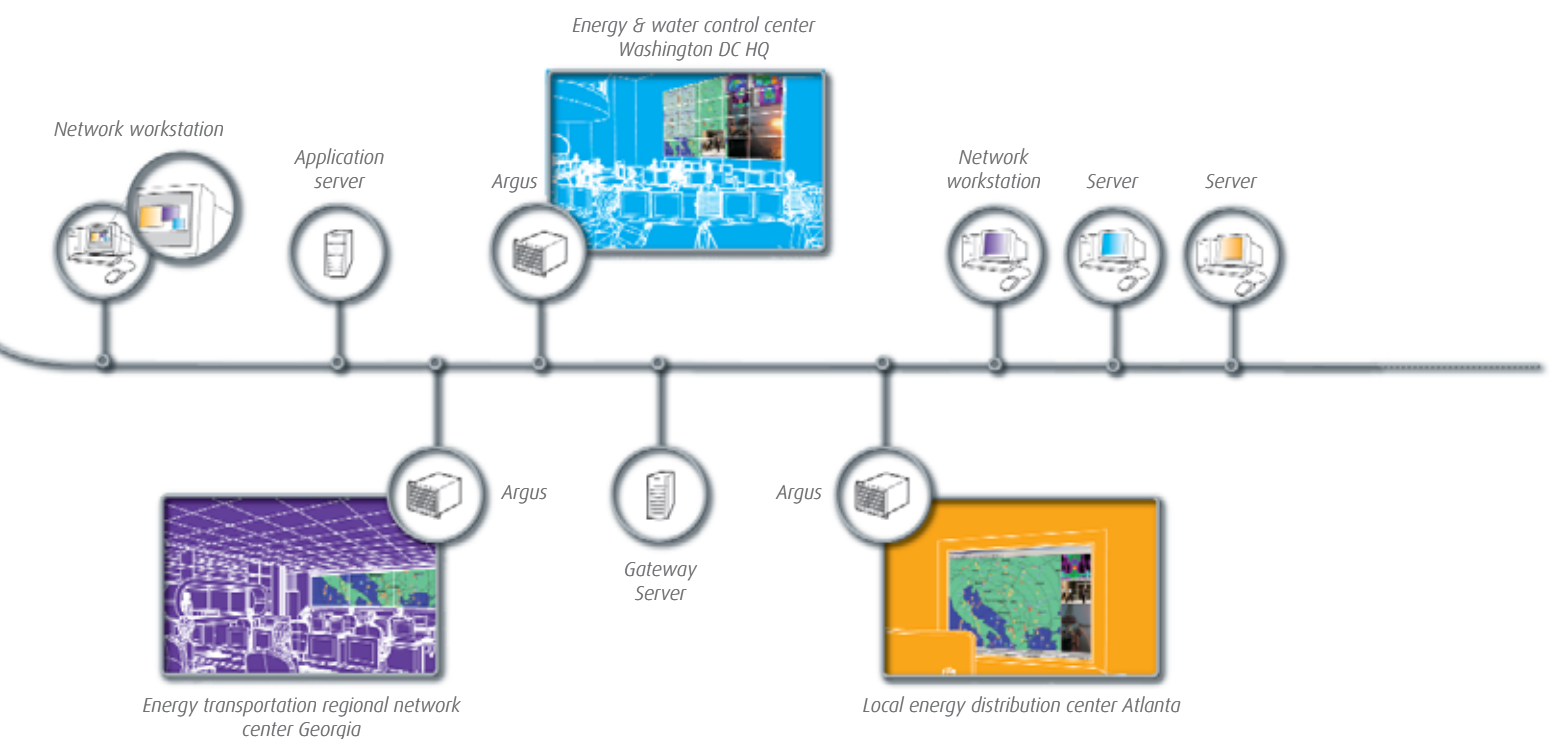
Future-proof infrastructure using COTS products and IT technology

Screen layouts showing different applications using client/server or screenscraping technology

Visualization of different SCADA & ERP systems simultaneously on one large canvas

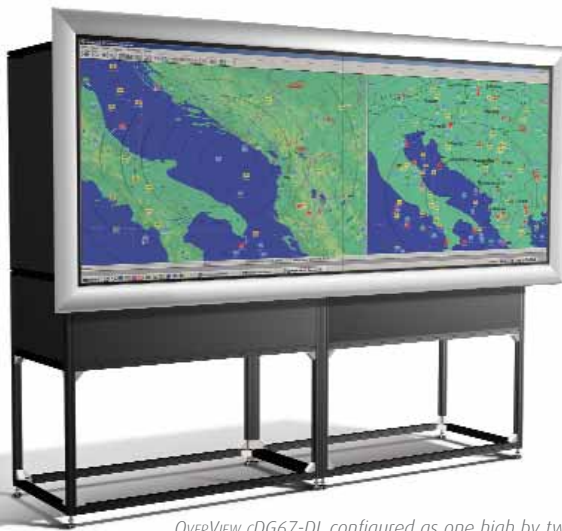
Distribute content over the network to different other monitors or projectors

Makes full advantages of digital solutions like GIS, dashboards, historians, simulations ...





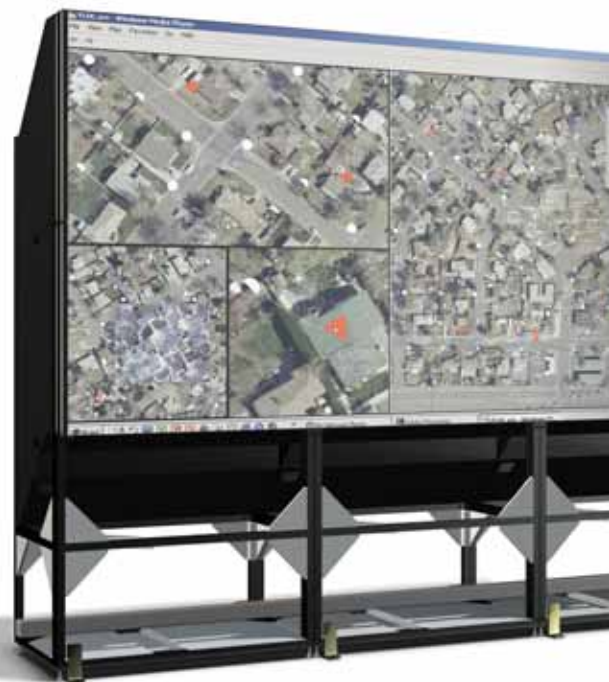
OverView cDR 80-DL configured as two high by two wide with SXGA+ resolution



OverView cDG67-DL configured as one high by two wide resulting in a total resolution of 2048 x 768 and featuring dual-lamp redundancy



High resolution LCD display





Scenario concept

At every moment, operators need to know the real situation to understand what is happening. By setting up scenarios that are controlling the content of the display wall, you can speed up the process of searching for the content that you need. Using best practice cases, your operational efficiency will increase, the reaction time will shorten and your staffing will become more efficient as the latest data will always be available when you need it.



*OverView mDR*50-DL configured as three wide by two high which translates into 4200 x 2100 pixels. This display solution also features dual lamp redundancy*

Dynamic content management

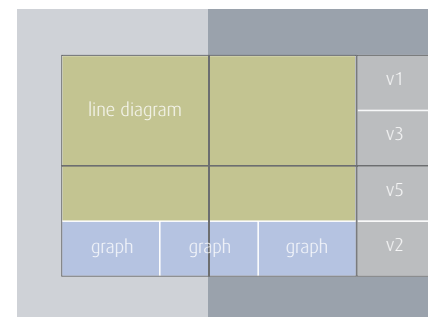
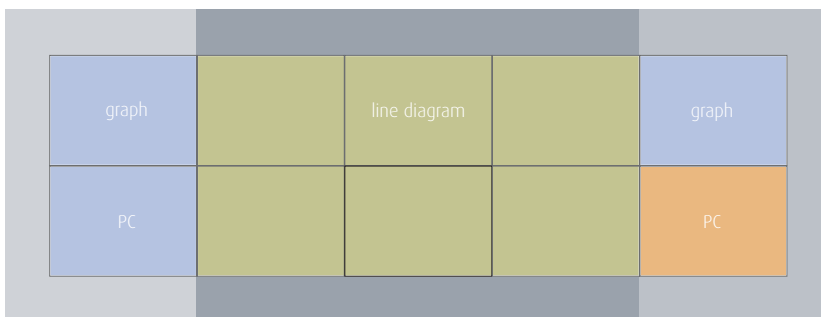
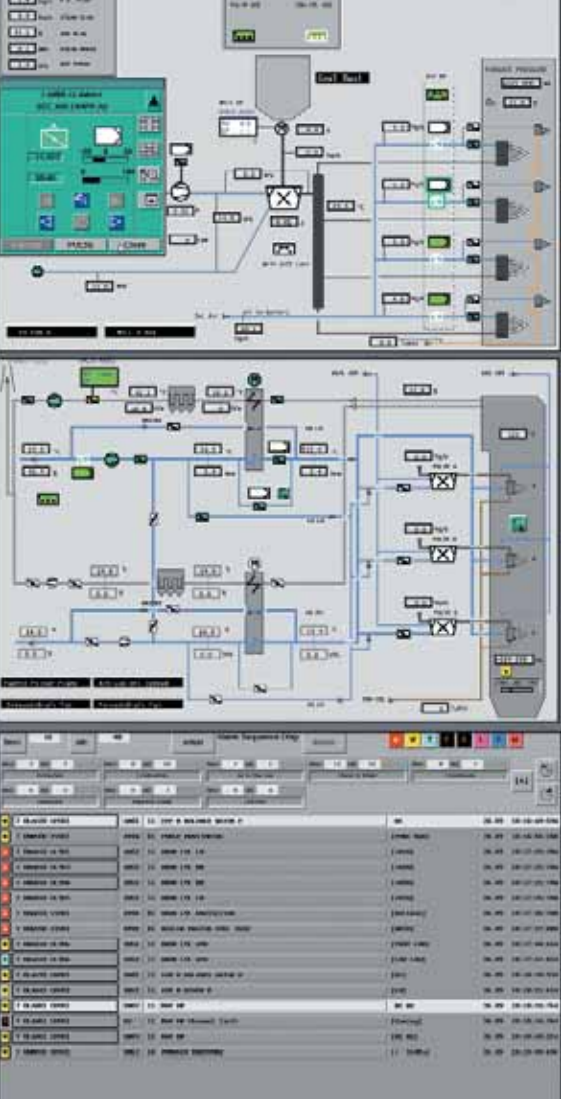
The iUTILITIES display management software APOLLO, features integrated layout management and digital video switching functions. In essence, APOLLO allows operators to manage and share content efficiently. Common-operational-picture and scenario building functions enable operators to respond to events and raise the alarms in line with best practices. Event-associated displays facilitate exception-based management. This can draw proper user attention to manage events, rather than require active user interaction. For example, popping up the video or data of an area of interest defined by the DMS software at the proper size and location on the display unit.

Also, scenarios can be set up in function of workload for day or night shifts using the full capability of the display wall.

Creating one graphical representation of your process means merging different digital formats easily, including line diagrams, GIS maps, ecological displays, live trend diagrams and spreadsheets. This allows you to maintain all your assets digitally. Integrating live or recorded video feeds can come from surveillance cameras, operational video cameras over IP, infrared cameras, combustion cameras, CCTV and television channels, e.g. local news or weather channels. Integrating content using the Barco API creates one coherent dynamic HMI solution. This includes remote pointers, Multi-users and pointers capabilities, dynamic and distributed zooms and direct display controls, all set by administrator rights technology.

Working in a digital environment allows you to design, operate and maintain your process efficiently, e.g.

- easily maintain your diagrams
- easily substitute components
- standardize future-proof solution with open architecture



Scenario 1: Standard operations

Outstanding product characteristics

From 42" flat panels over personal walls to large area display solutions, iUTILITIES is a multi-technology platform featuring flexible design possibilities, 24/7 operation and minimal depth.

iUTILITIES products are designed and developed for a long life cycle focusing on ease of maintenance and low cost of ownership allowing the customer to run their investment over a longer extended period of time than standard consumer goods.

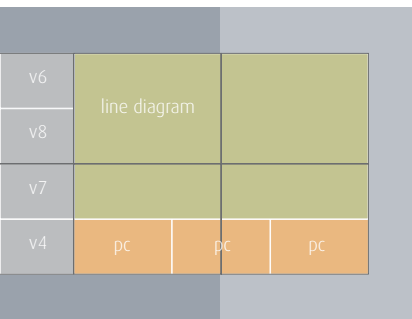
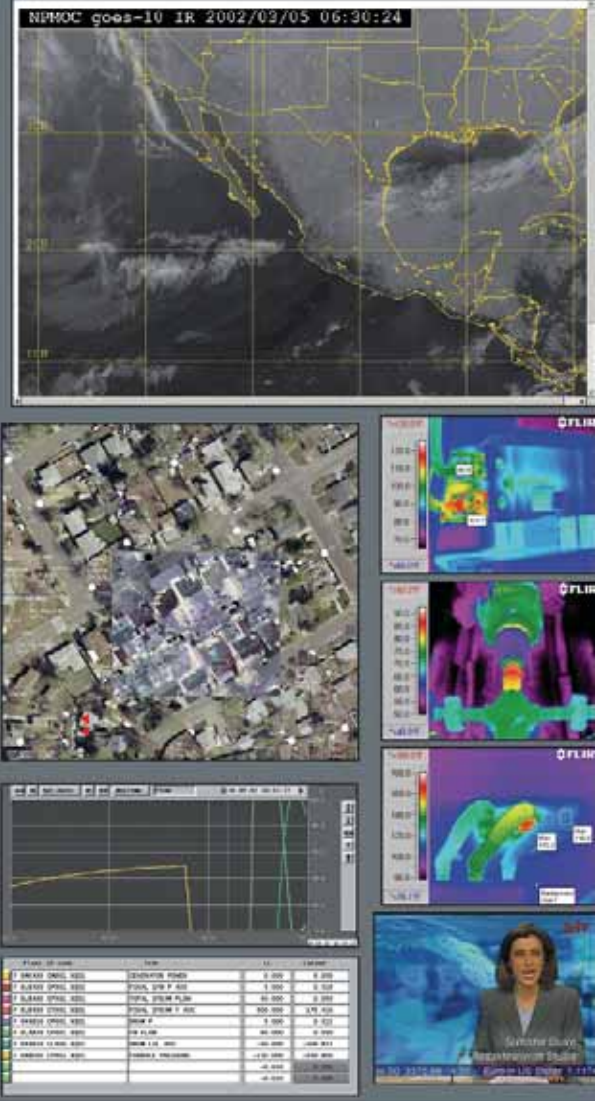
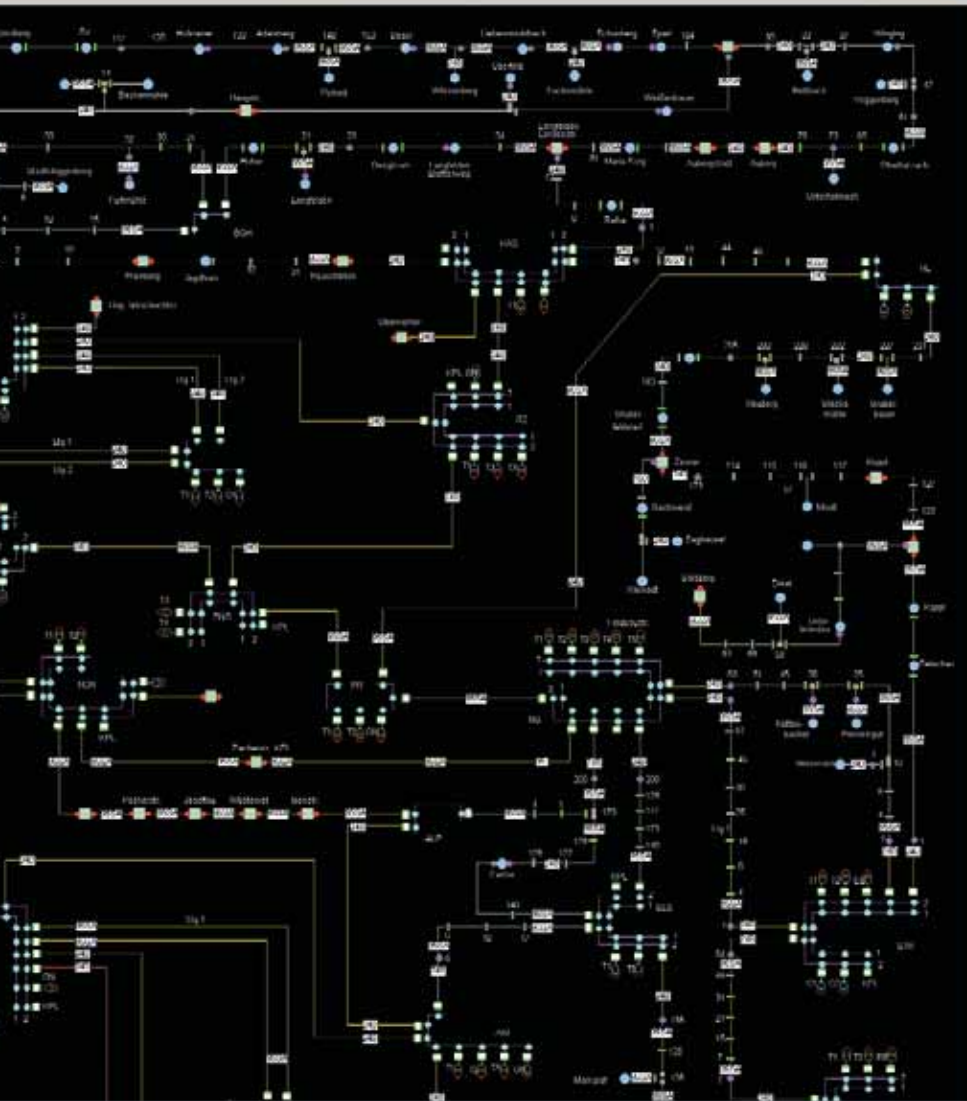
The equipment complies with different common industry safety standards (CE, UL) as well as with seismic standards like IEC 68-2-6 and JEAG 3605.

Product intelligence consists of self-diagnosis and reporting tools improving the quality over product lifetime.

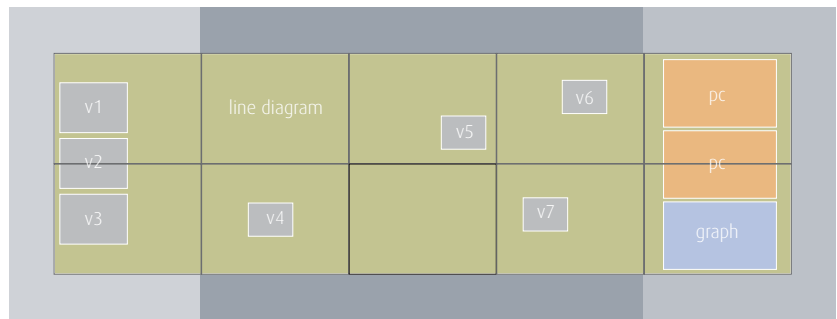
Barco's OverView series architecture allows easy maintenance and support resulting in a low MTTR. These features together with the dual auto fail-over

redundant lamps allow for a reliable 24 hours 7 days a week visualization tool.

The system can be regarded as a supporting structure with screen, integrated several components, which together generate the image. The whole light path, from lamp to screen, is designed to deliver optimal picture quality.



Scenario 2: Operations with 2 operators working on a display wall



Scenario 3: Overview with integrated applications

Multiple source handling

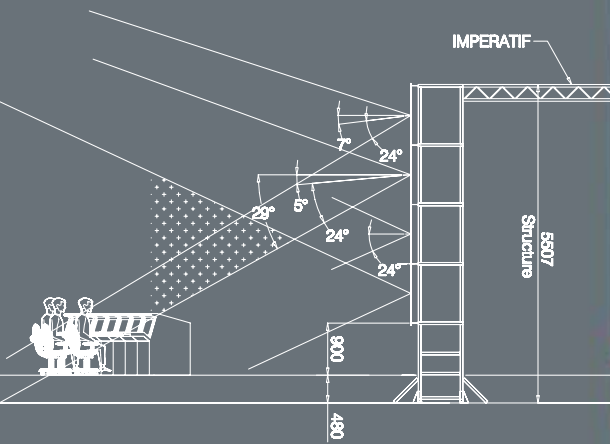
The iUTILITIES solutions are powered by Barco's TRANSFORM family network controllers (Eos and ARGUS). They allow for virtually unlimited integration of data and video sources into one Process-Overview-Picture overview. Unlike software-based visualization solutions, the hardware processing provides the user with increased capacity, better performance and quality.

Depending on the configuration of displays and mix of input types, the user can configure their system to

have different capacities that suit their needs and cost requirements with a technology and manufacturer that is future proof.

Barco's offering also features a universal decoder solution that increases cost-efficiency and facilitates the transition from analog to digital. The user can replace analog video input cards with digital input cards and can support analog and digital signals simultaneously in the same controller. The universal decoder is interoperable with MPEG-2 and 4 over Ethernet (IP).

- Application over LAN
- RGB video from PC
- Application running on the wall
- Video



Environment - Internal/external



Large dynamic overview systems

Large overview systems improve the efficiency in problem assessment, solving and situation awareness. They are used to enhance the staff performance by access to a common view of plant information and a means of sharing information between personnel, combining visual information from different sources and sensors.

The OverView display wall is the most accepted approach to present information and to address possible problems in complex process monitoring and controlling:

- maintaining awareness of overall

- operation status
- overcoming difficulty and time delay associated with accessing computer-based controls and displays
- maintaining awareness of crew member actions
- improving communication

Integration, ergonomics and multimodal interaction

Barco Control Rooms' expertise and competence in control room environment and technology includes the total design and engineering of operation and control room projects. Barco's approach and clear design methodology means assisting the customer from the earliest stages of concept engineering to the final delivery of the control center. Barco Control Rooms' design philosophy is centered on two basic concepts: large-area screen display and individual watch station or personal wall that integrates fluently in different types of control centers specified by your experts.



iUTILITIES in use at

Arizona Public Service

Chubu Electric

E.ON

EdF

Electrabel

Electric Power China

ENEL

Israel Electric

Barco Control Rooms has become the industry standard in the field of monitoring solutions for Control & Operation Centers in telecom, traffic, surveillance, public utilities, broadcasting, finance and service providing companies. Barco Control Rooms is renowned for its flexible, market-specific approach, successfully implemented in over two thousand control rooms worldwide.



Fully committed to quality, Barco Control Rooms offers full technical support as well as on-site training. With its head offices in Belgium and Germany, Barco Control Rooms is represented in more than 30 countries across the globe. With a yearly R&D effort of 10% of its turnover, Barco Control Rooms ensures it remains at the forefront of technology.

Luz Y Fuerza del Centro

Mosenergo

National Grid UK

NUON

RWE

State Grid Corporation of China

Vattenfall

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Ref. no. R599830 March 2006

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