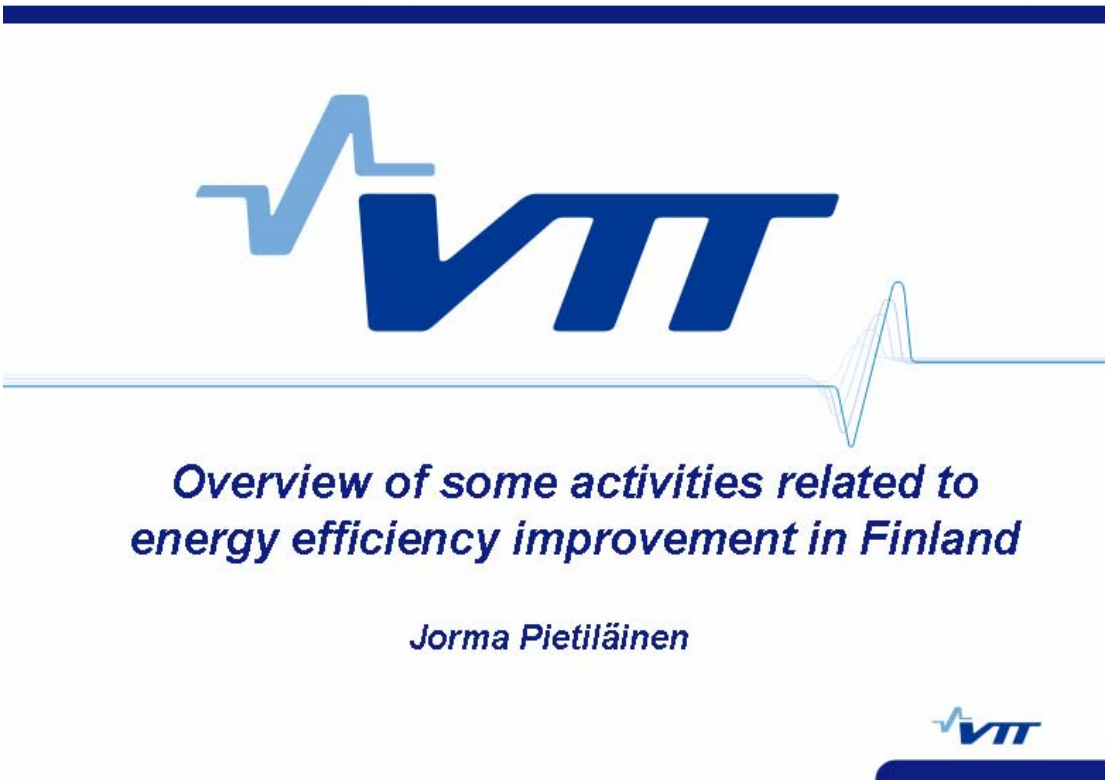
9 Session 7: Energy Saving Performance Contracts: Forms and Financing Options

Overview of Activities Related to Energy Efficiency Improvement in Finland.

Presenter: Mr. Jorma Pietilainen. VTT, Finland.



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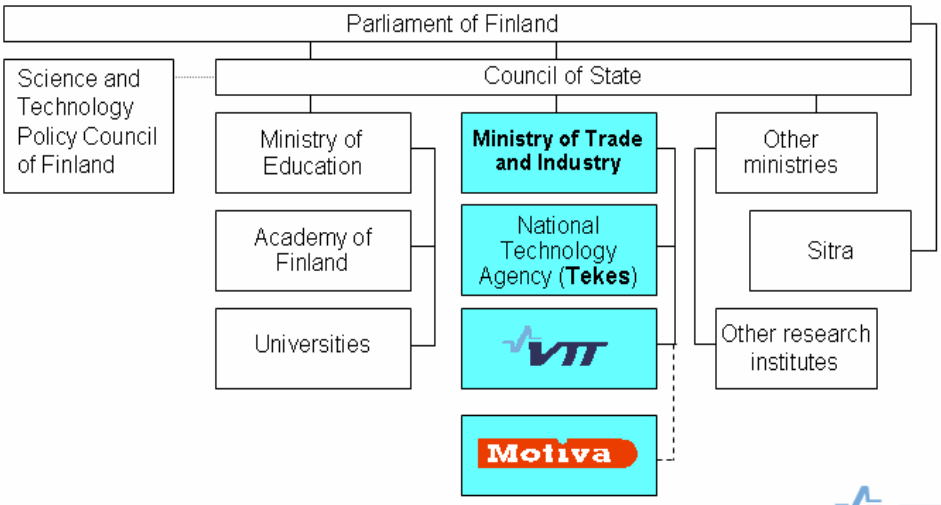
VTT BUILDING AND TRANSPORT

THE MOST IMPORTANT DECISION MAKERS, FINANCERS AND PERFORMERS OF RESEARCH IN THE PUBLIC SECTOR



 2

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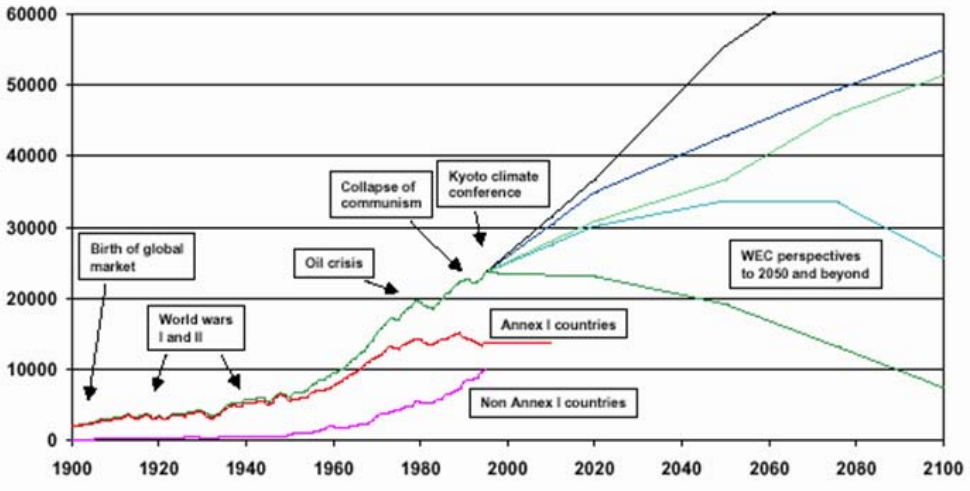
Global CO_2 emissions ($MtCO_2/a$) 1900-2100



 3

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Environmental threats:

 Photo by Peter Seidl 4

VTT BUILDING AND TRANSPORT

Energy Conservation Programme

- Launched in 1992
- Revised and intensified in 1995
- Intensified in 2000
  (as a part of preparing the National Climate Strategy)
- Updated 2002

 Photo by Peter Seidl 5

VTT BUILDING AND TRANSPORT

The key elements of Energy Conservation Programme:

- Development and commercialisation of energy efficient **technology**
- Economic means of steering
  - Building **regulations** (e.g. new EU Directive)
  - Voluntary energy conservation agreements
  - **Energy audits** and **ESCO** activities
  - **Information, training and motivating** activities

 Photo by Peter Seidl 6

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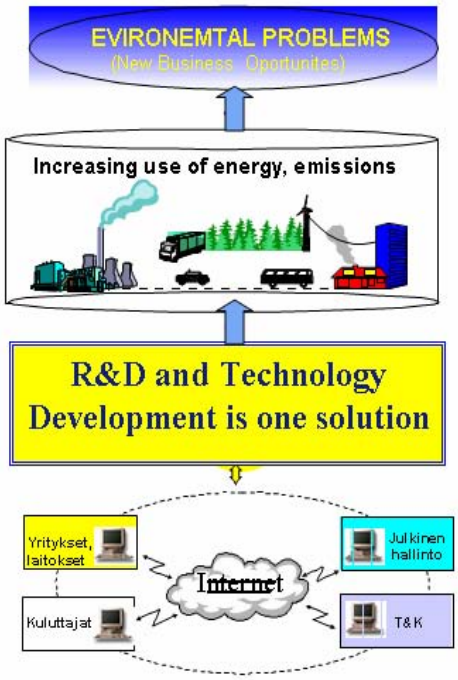

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TEKES

CUBE

BUILDING SERVICES
TECHNOLOGY PROGRAMME 2002–2006

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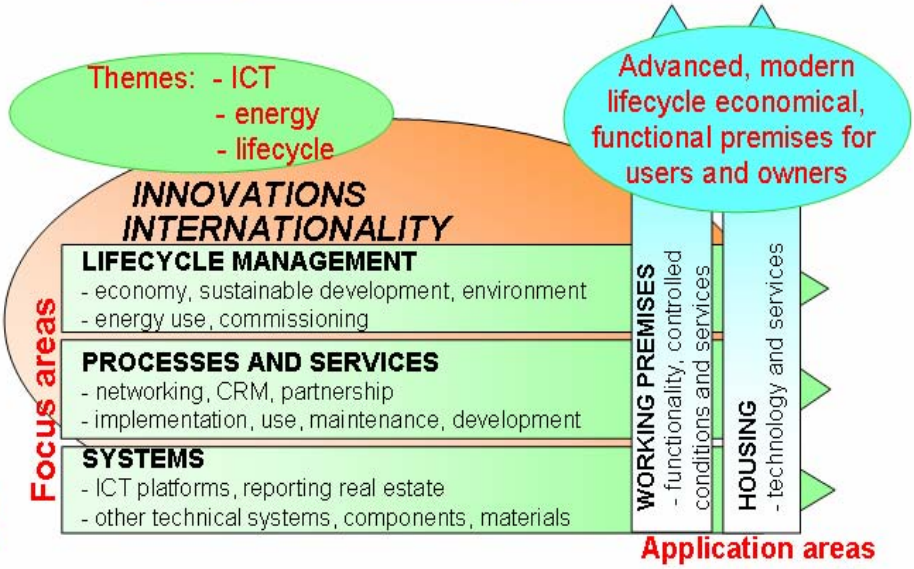
VTT BUILDING AND TRANSPORT

CUBE BUILDING SERVICES TECHNOLOGY PROGRAMME 2002–2006

Technology program themes, and development activity focuses and application areas



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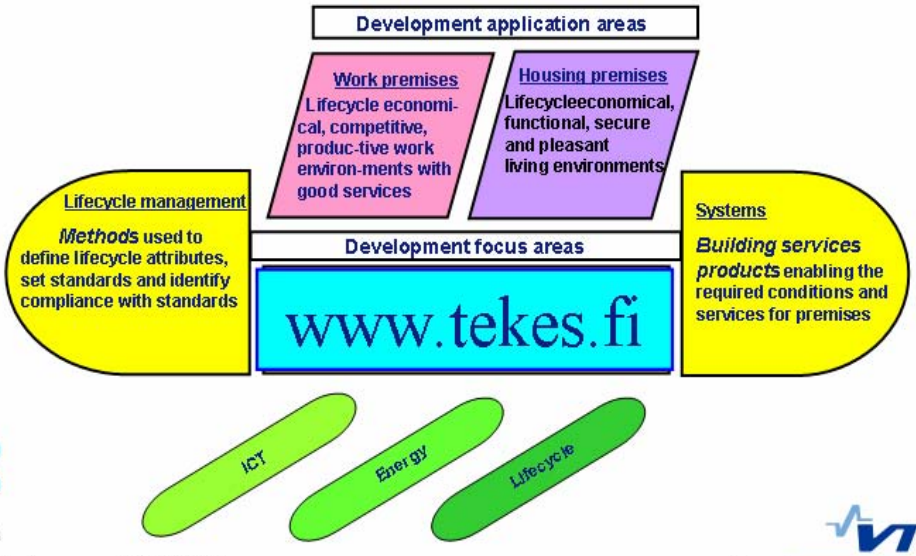
VTT BUILDING AND TRANSPORT

CUBE
BUILDING SERVICES TECHNOLOGY PROGRAMME 2002-2006

Objectives by focus area and application



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VTT BUILDING AND TRANSPORT

VTT IN BRIEF

Units:

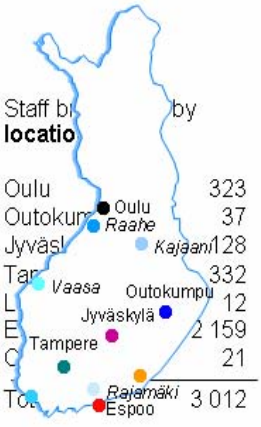
VTT Electronics
VTT Information Technology
VTT Industrial Systems
VTT Processes
VTT Biotechnology
VTT Building and Transport

VTT Information Service
VTT Corporate Management and Services

Staff: 3 012

Turnover: 214 M€

- Basic govern. funding to R&D on VTT's own initiative 34 M€
- Jointly funded projects 92 M€
- Commercial activities 88 M€



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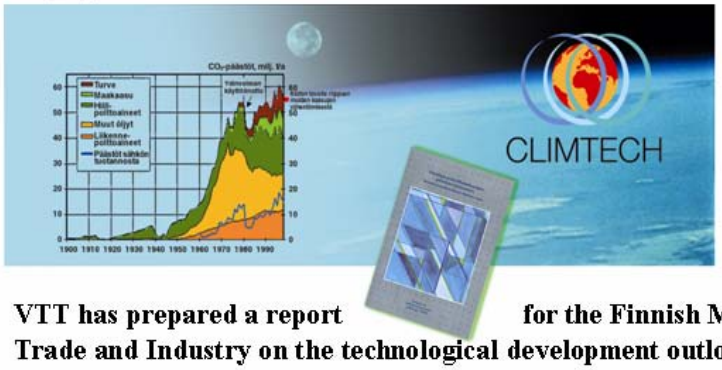
Support for National Climate Strategy



VTT has prepared a report for the Finnish Ministry of Trade and Industry on the technological development outlook for the control of greenhouse gas emissions. The report is intended to support decisions concerning the National Climate Strategy.

VTT has also participated in studies of the the economic effects of reducing greenhouse gas emissions.

 Photo by Peter Seidl 12 2001

VTT BUILDING AND TRANSPORT

Development of Low-energy houses

Heating energy consumption less than half of conventional buildings => reduced emissions

Good indoor air and demand controlled, i.e. adjustable ventilation

Reduced life-cycle costs

 Photo by Peter Seidl 13 2001

VTT BUILDING AND TRANSPORT

Tools for managing life-cycle costs and environmental requirements

• VTT Building Technology has developed tools for calculation of life-cycle costs and for management of environmental requirements, such as a method for classifying life-cycle cost calculation methods, a system for assessing the life-cycle costs of technical systems and EcoProp system for management of environmental requirements

• EcoProp can be used to numerically define the performance characteristics and environmental characteristics of a building on the basis of the needs of the property owner and occupants, and design solutions can be developed to meet the set targets; the inclusion of life-cycle costs quickly reveals whether the desired level of requirements is in conflict with the cost targets

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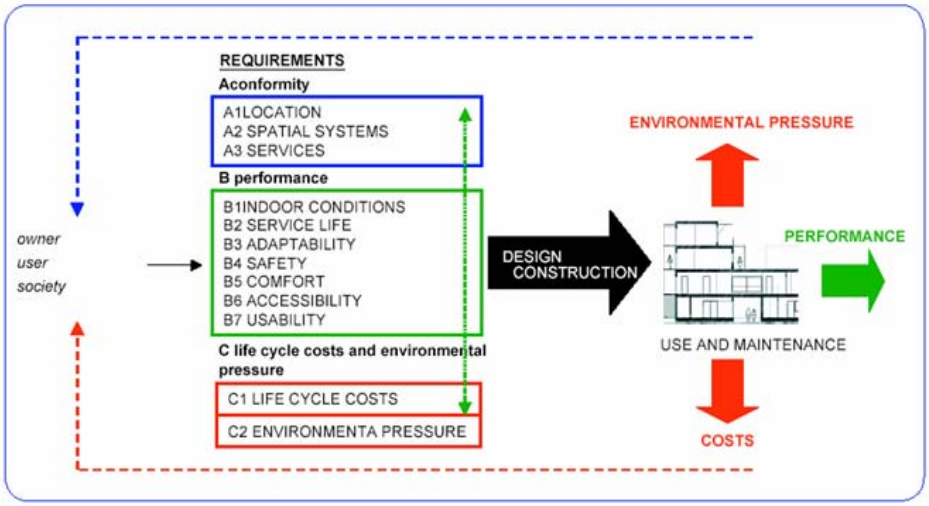
Requirements management - EcoProP



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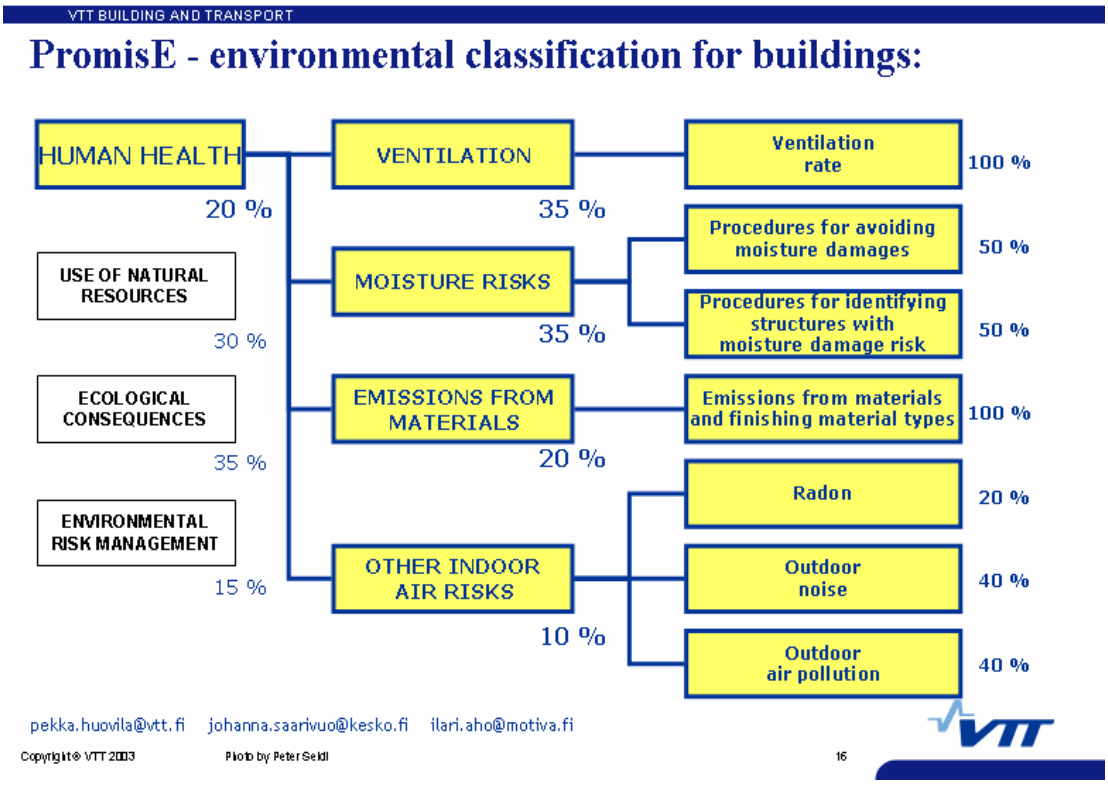
VTT BUILDING AND TRANSPORT
PromisE - environmental classification for buildings:
HUMAN HEALTH
20 %
USE OF NATURAL RESOURCES
30 %
ECOLOGICAL CONSEQUENCES
35 %
ENVIRONMENTAL RISK MANAGEMENT
15 %
VENTILATION
35 %
MOISTURE RISKS
35 %
EMISSIONS FROM MATERIALS
20 %
OTHER INDOOR AIR RISKS
10 %
Ventilation rate
100 %
Procedures for avoiding moisture damages
50 %
Procedures for identifying structures with moisture damage risk
50 %
Emissions from materials and finishing material types
100 %
Radon
20 %
Outdoor noise
40 %
Outdoor air pollution
40 %
pekka.huovila@vtt.fi johanna.saarivuo@kesko.fi ilari.aho@motiva.fi
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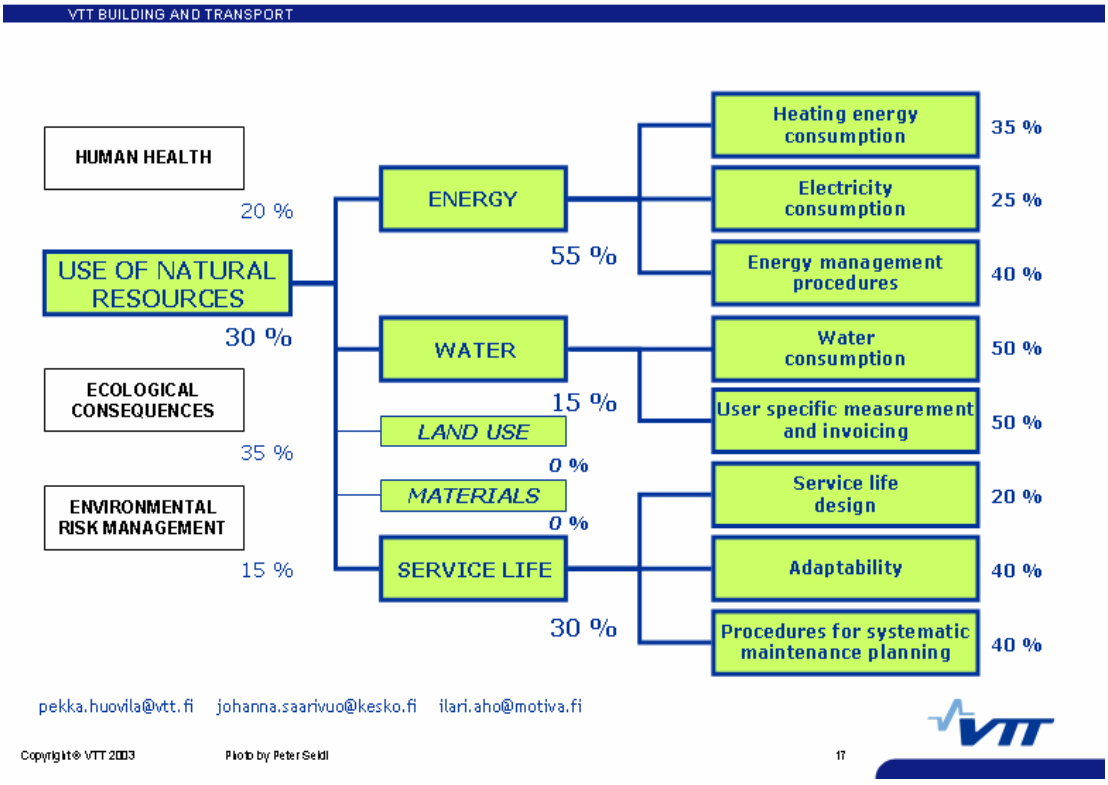
VTT BUILDING AND TRANSPORT
HUMAN HEALTH
20 %
USE OF NATURAL RESOURCES
30 %
ECOLOGICAL CONSEQUENCES
35 %
ENVIRONMENTAL RISK MANAGEMENT
15 %
ENERGY
55 %
WATER
15 %
LAND USE
0 %
MATERIALS
0 %
SERVICE LIFE
30 %
Heating energy consumption
35 %
Electricity consumption
25 %
Energy management procedures
40 %
Water consumption
50 %
User specific measurement and invoicing
50 %
Service life design
20 %
Adaptability
40 %
Procedures for systematic maintenance planning
40 %
pekka.huovila@vtt.fi johanna.saarivuo@kesko.fi ilari.aho@motiva.fi
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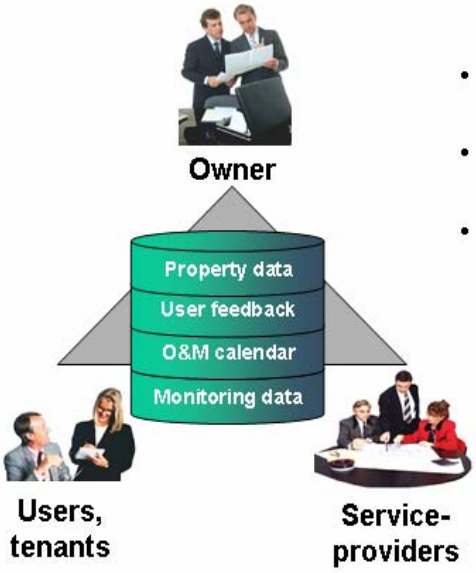
OIWA, web-based O&M Manual



- Up to date information to all partners
- User feedback and maintenance history utilised continuosly
- Transparent QA

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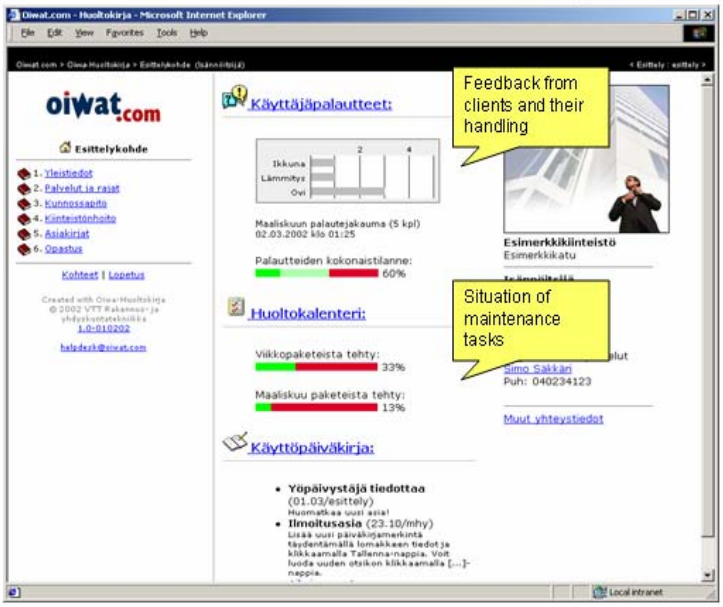
User Interface for House Manager



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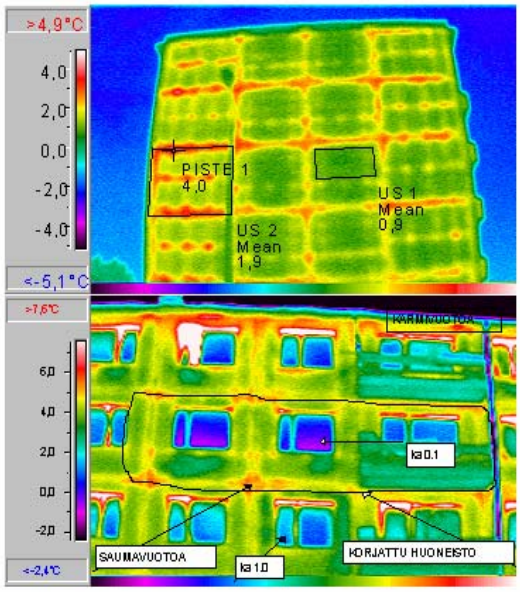
Thermography in building commissioning



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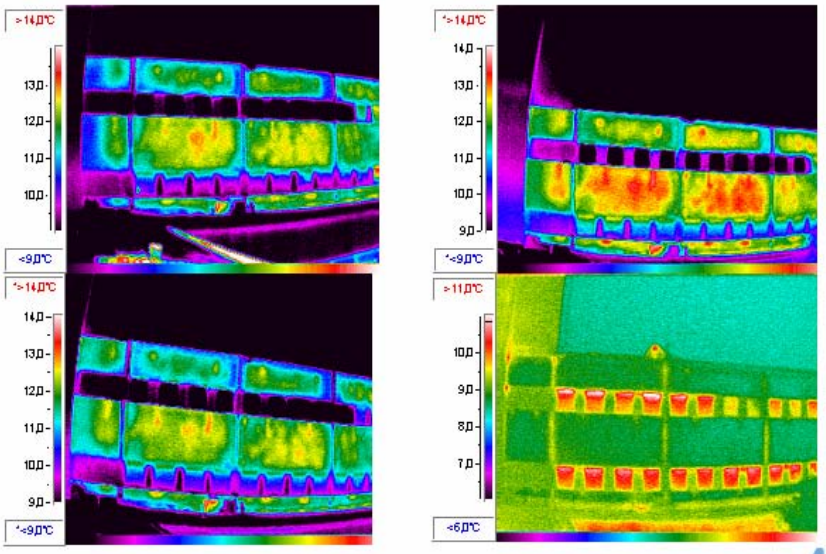
Moisture problems in the concrete sandwich panel



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VTT BUILDING AND TRANSPORT

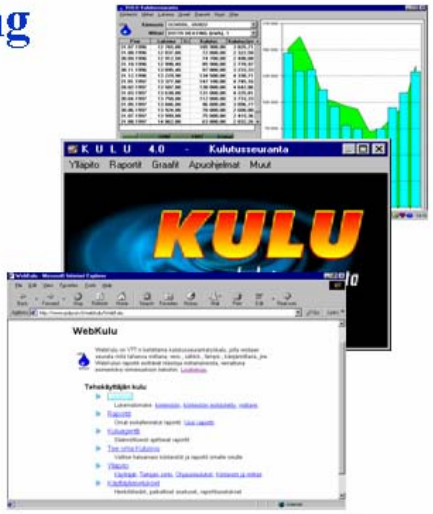
VTT developes effective tools for Energy

VTT KULU

⇨Monitoring&Targeting
⇨Benchmarking

⇨Analysing
⇨Auditing
⇨Assessment

⇨Feedback
⇨Motivation



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VTT BUILDING AND TRANSPORT

Monitoring = Basis for Everything!

- Reliable consumption data forms the **basis for energy retrofitting and saving measures**
- **Verification** of implemented saving measures is impossible without reliable consumption figures:

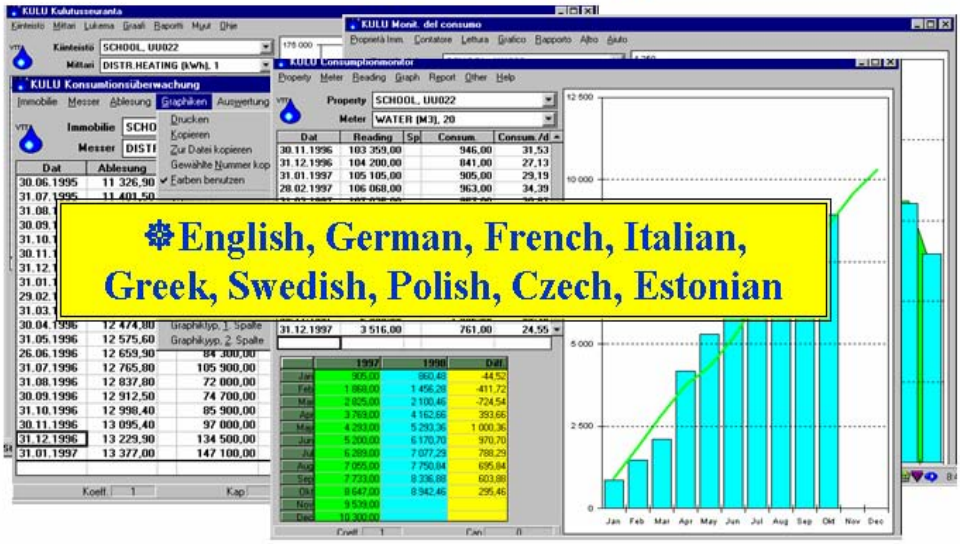
☺ **Energy Saving = Baseline Energy Use – Post Installation Energy Use**

- Monitoring can be used to implement the **Building Energy Certification** schemes (see Energy Star of EPA/USA)
- **Feedback** for **M&O personnel** is the key (basis for motivation, training etc.)
- **Statistics**, etc. information, **decision makers**, **designers**, **users**, **owners**, authorities etc. etc. **must** be produced too

 Photo by Peter Seidl

VTT BUILDING AND TRANSPORT

Support for several languages



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More professional tools for big organisations:

like Portable Bar Code Scanner

for effective meter reading and data collection e.g. in the Ministry of Defence in Finland!

 Photo by Peter Seidl 25

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Data from Existing Utility Meters

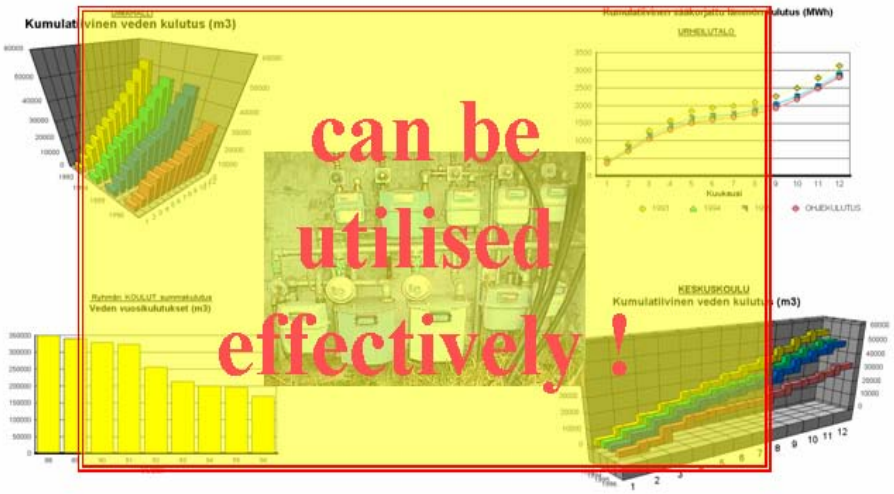

 Photo by Peter Seidl 26

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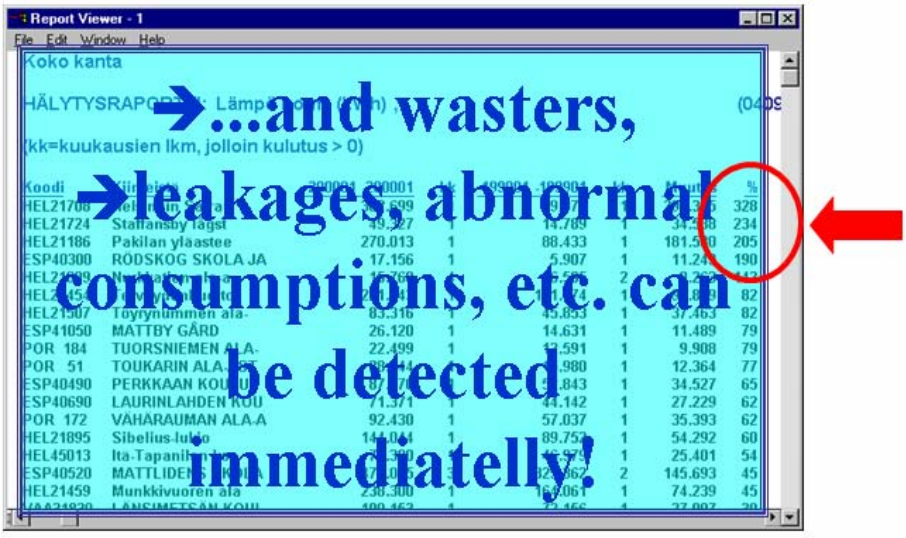
"Anomalies" can be found easily...



→...and wasters,
→leakages, abnormal consumptions, etc. can be detected immediatelly!

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Modern ICT will be utilised in collaboration with Finnish companies!

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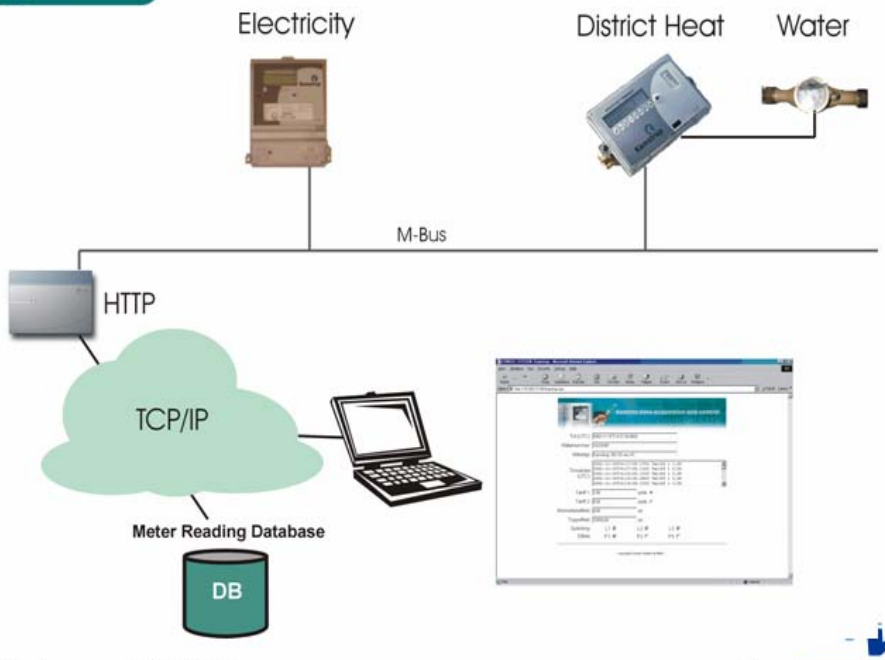
M-Bus

Comsel M-Bus solution



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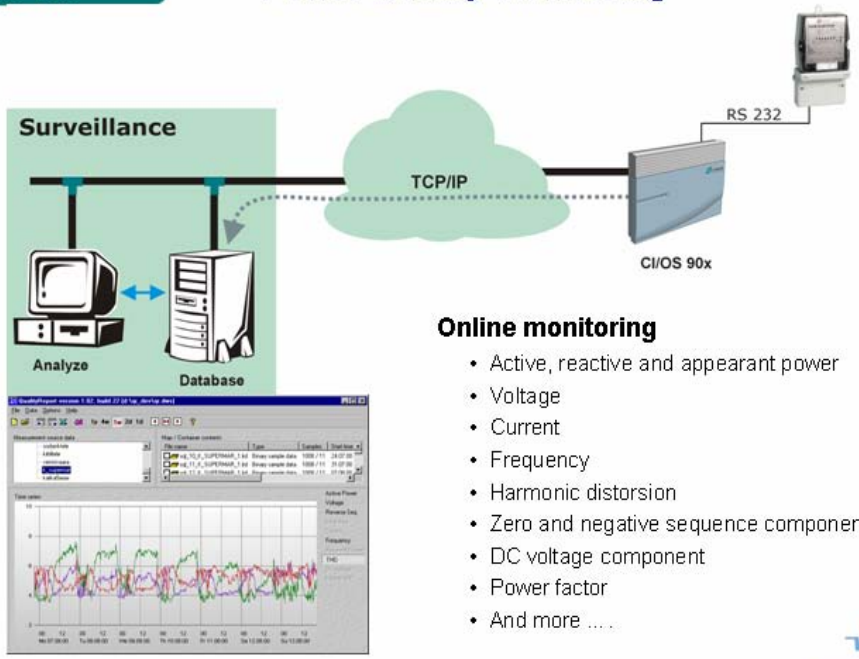
EN50160 Power Quality Monitoring



Online monitoring

- Active, reactive and appearant power
- Voltage
- Current
- Frequency
- Harmonic distorsion
- Zero and negative sequence components
- DC voltage component
- Power factor
- And more ....

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Enviromental monitoring system of VTT

 Photo by Peter Seidl 31

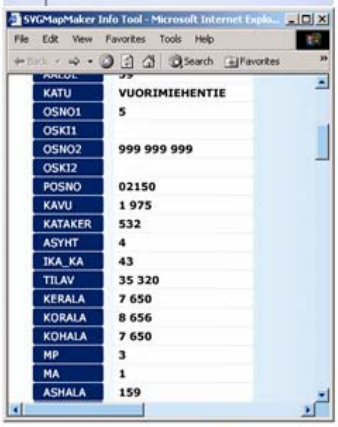
VTT BUILDING AND TRANSPORT

rakennus,PohjaK Map

30002100 Lämpömiehenkj.2 , 24060 m3

Vuosikulutukset , (omin.=ominaiskulutus vesi-l/m3, muut-kwh/m3)

Vuosi	-Lämpö-sääkorj. (MWh)	omin.	-Lämpö- (MWh)	omin.	-Sähkö- (MWh)	omin.	-Vesi- (m3)	omin.
1996	674	28	697	29	221	9	7.574	315
1997	653	27	628	26	219	9	7.990	332
1998	680	28	651	27	211	9	7.254	301
1999	453	19	434	18	203	8	1.457	61
2000	527	22	452	19	482	20	1.742	72
2001	1.066	44	1.030	43	861	36	2.186	91
2002	975	41	941	39	682	28	1.843	77
2003	650	27	663	28	464	19	1.436	60



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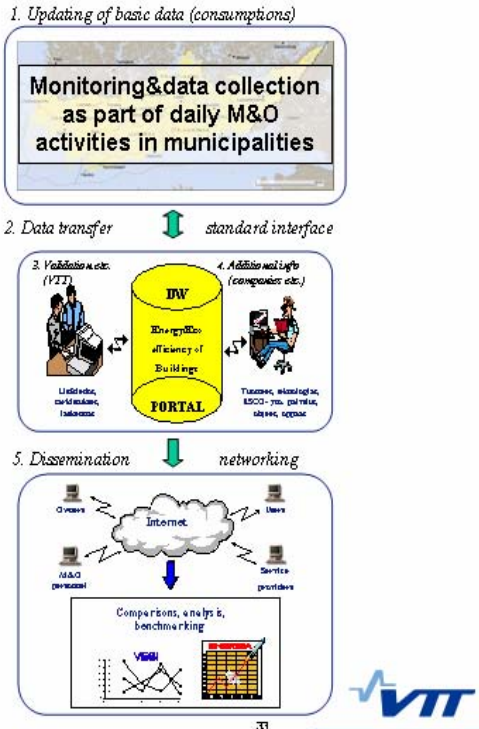
e^3Portal :

- ☆ *e*nergy
- ☆ *e*conomy
- ☆ *e*nvironment



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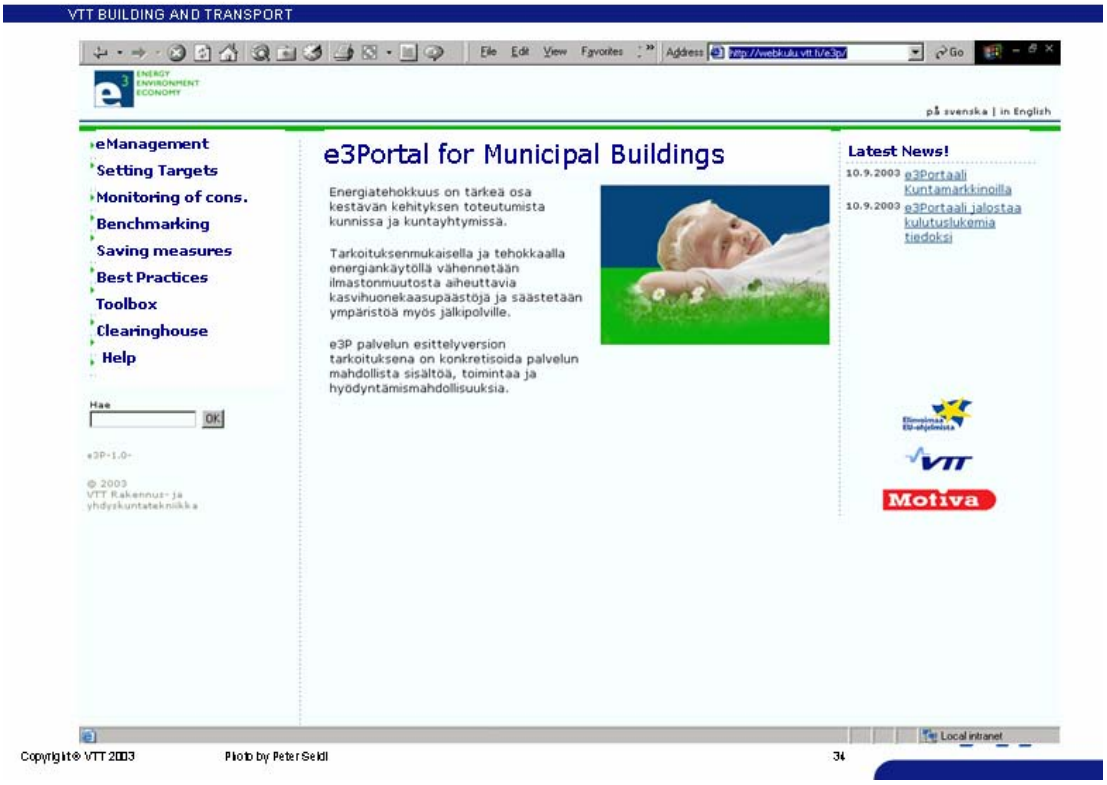
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e3 ENERGY ENVIRONMENT ECONOMY
på svenska | in English
eManagement
Setting Targets
Monitoring of cons.
Benchmarking
Saving measures
Best Practices
Toolbox
Clearinghouse
Help
Hae
OK
e3P-1.0-
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VTT Rakennus- ja yhdyskuntatekniikka
e3Portal for Municipal Buildings
Energiatehokkuus on tärkeä osa kestävän kehityksen toteutumista kunnissa ja kuntayhtymissä.
Tarkoituksenmukaisella ja tehokkaalla energiankäytöllä vähennetään ilmastonmuutosta aiheuttavia kasvihuonekaasupäästöjä ja säästetään ympäristöä myös jälkipolville.
e3P palvelun esittelyversion tarkoituksena on konkretisoida palvelun mahdollista sisältöä, toimintaa ja hyödyntämismahdollisuuksia.
Latest News!
10.9.2003 e3Portaali Kuntamarkkinoilla
10.9.2003 e3Portaali jalostaa kulutuslukemia tiedoksi
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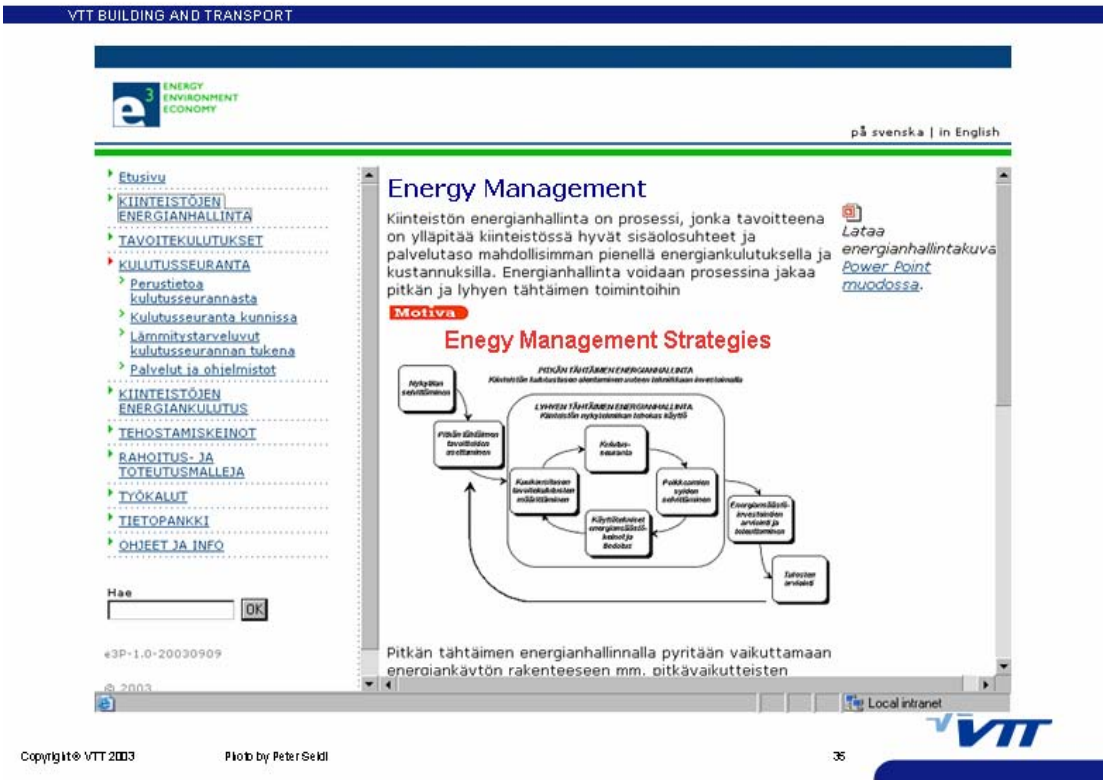
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på svenska | in English
Etusivu
KIINTEISTÖJEN ENERGIANHALLINTA
TAVOITEKULUTUKSET
KULUTUSSEURANTA
Perustietoa kulutusseurannasta
Kulutusseuranta kunnissa
Lämmitystarveluvut kulutusseurannan tukena
Palvelut ja ohjelmistot
KIINTEISTÖJEN ENERGIANKULUTUS
TEHOSTAMISKEINOT
RAHOITUS- JA TOTEUTUSMALLEJA
TYÖKALUT
TIETOPANKKI
OHJEET JA INFO
Hae
OK
e3P-1.0-20030909
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Energy Management
Kiinteistön energianhallinta on prosessi, jonka tavoitteena on ylläpitää kiinteistössä hyvät sisäolosuhteet ja palvelutaso mahdollisimman pienellä energiankulutuksella ja kustannuksilla. Energianhallinta voidaan prosessina jakaa pitkän ja lyhyen tähtäimen toimintoihin
Lataa energianhallintakuva Power Point muodossa.
Motiva
Enegy Management Strategies
Pitkän tähtäimen energianhallinnalla pyritään vaikuttamaan energiankäytön rakenteeseen mm. pitkävaikutteisten
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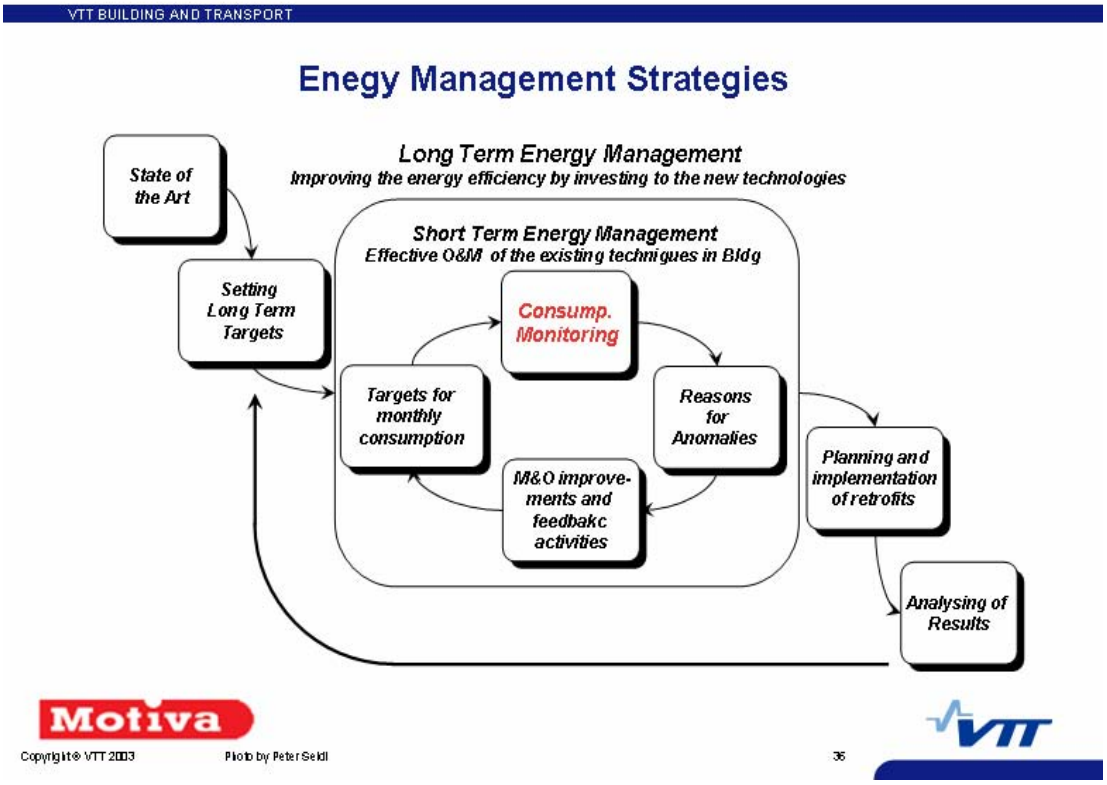
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Enegy Management Strategies
State of the Art
Long Term Energy Management
Improving the energy efficiency by investing to the new technologies
Short Term Energy Management
Effective O&M of the existing techniques in Bldg
Setting Long Term Targets
Consump. Monitoring
Targets for monthly consumption
Reasons for Anomalies
M&O improve-ments and feedbakc activities
Planning and implementation of retrofits
Analysing of Results
Motiva
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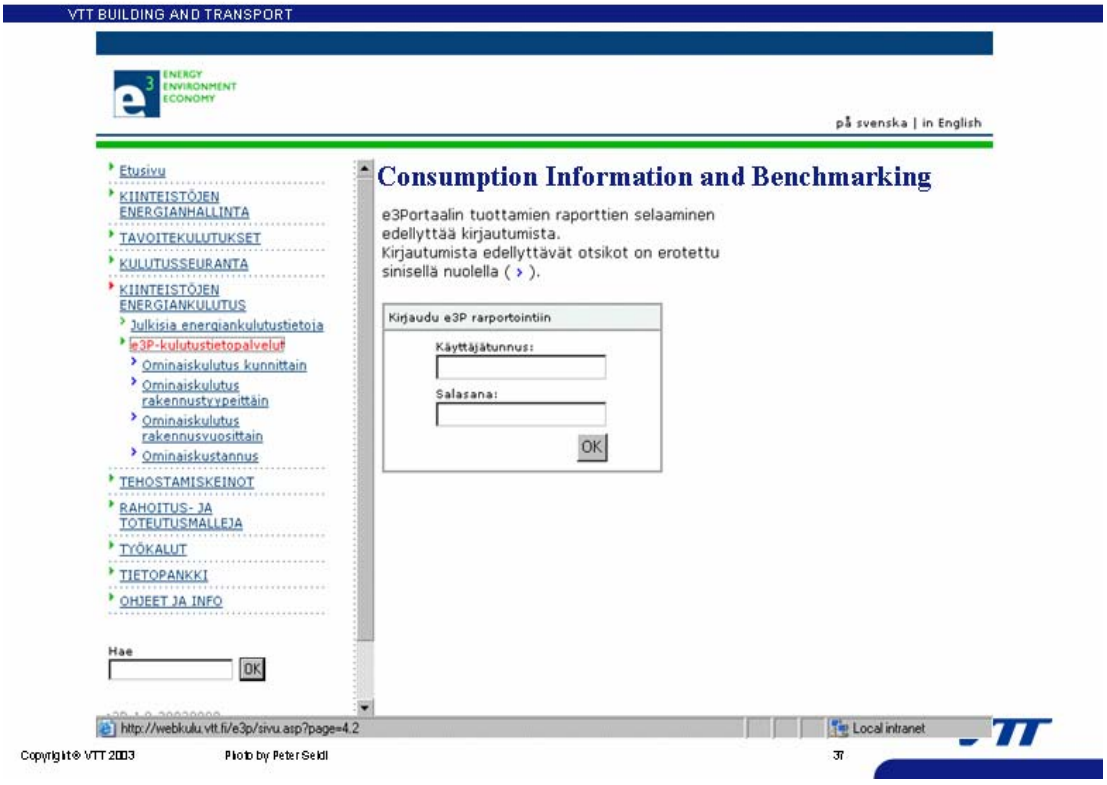
VTT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ENERGY ENVIRONMENT ECONOMY
på svenska | in English
Etusivu
KIINTEISTÖJEN ENERGIANHALLINTA
TAVOITEKULUTUKSET
KULUTUSSEURANTA
KIINTEISTÖJEN ENERGIANKULUTUS
Julkisia energiankulutustietoja
e3P-kulutustietopalvelut
Ominaiskulutus kunnittain
Ominaiskulutus rakennustyypeittäin
Ominaiskulutus rakennusvuosittain
Ominaiskustannus
TEHOSTAMISKEINOT
RAHOITUS- JA TOTEUTUSMALLEJA
TYÖKALUT
TIETOPANKKI
OHJEET JA INFO
Hae
OK
Consumption Information and Benchmarking
e3Portaalin tuottamien raporttien selaaminen edellyttää kirjautumista.
Kirjautumista edellyttävät otsikot on erotettu sinisellä nuolella (›).
Kirjaudu e3P rarportointiin
Käyttäjätunnus:
Salasana:
OK
http://webkulu.vtt.fi/e3p/sivu.asp?page=4.2
Local intranet
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Benchmarking - an effective tool

Specific Consumption of Energy in some Schools of Helsinki

Heating		(kWh/m3)				Total cons. year 1999 MWh)
Code	School	1996	1997	1998	1999	
HEL21187	Kontulan	81,1	83,1	89,4	82,2	.218
HEL21690	Pukinmäen	24,7	87,3	93,5	81,6	110
HEL21648	Pohjois-H	64,9	71,7	86,7	74,6	42
HEL21186	Pakilan y	44,7	62,3	66,4	61,8	.270
HEL21198	Vesalan y	52,6	53,8	54,3	57,5	.343
						.105
						828
						.531
						454
HEL21143	Jakomäen	41,6	40,4	44,6	44,3	.211
HEL21055	Oulunkylä	45,3	45,3	54,8	43,9	828
HEL21185	Pakilan a	41,7	42,5	44,2	43,8	765
HEL21236	Käpylän y	35,5	38,0	39,3	38,5	.145
HEL21017	Vallilan	37,2	33,6	39,6	35,6	582
In average		47,2	49,1	57,4	50,6	

for Best Practice Dissemination!

 Photo by Peter Seidl 38

VTT BUILDING AND TRANSPORT

Benchmarking Services:

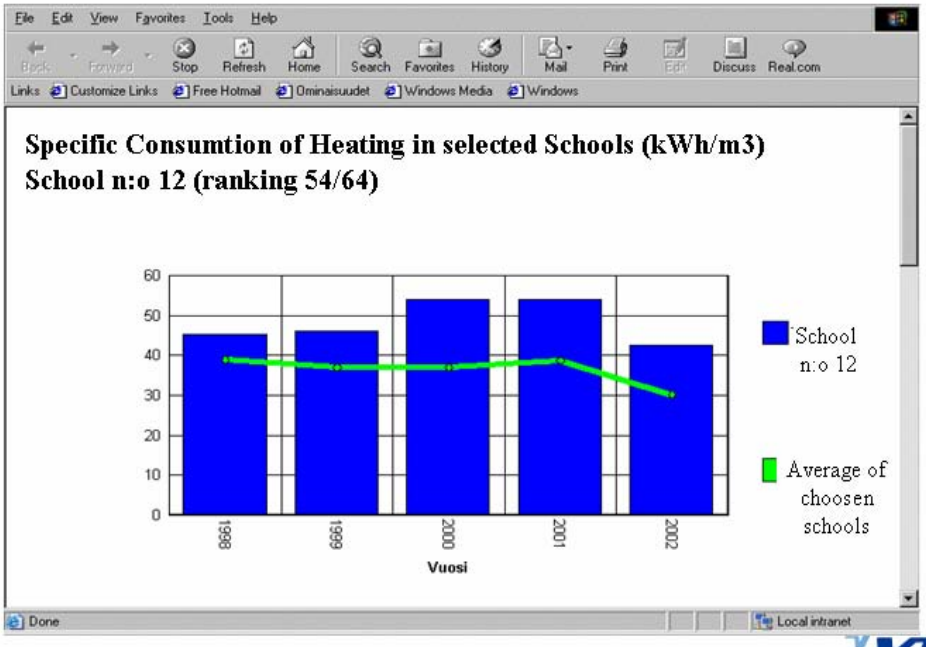

 Photo by Peter Seidl 39

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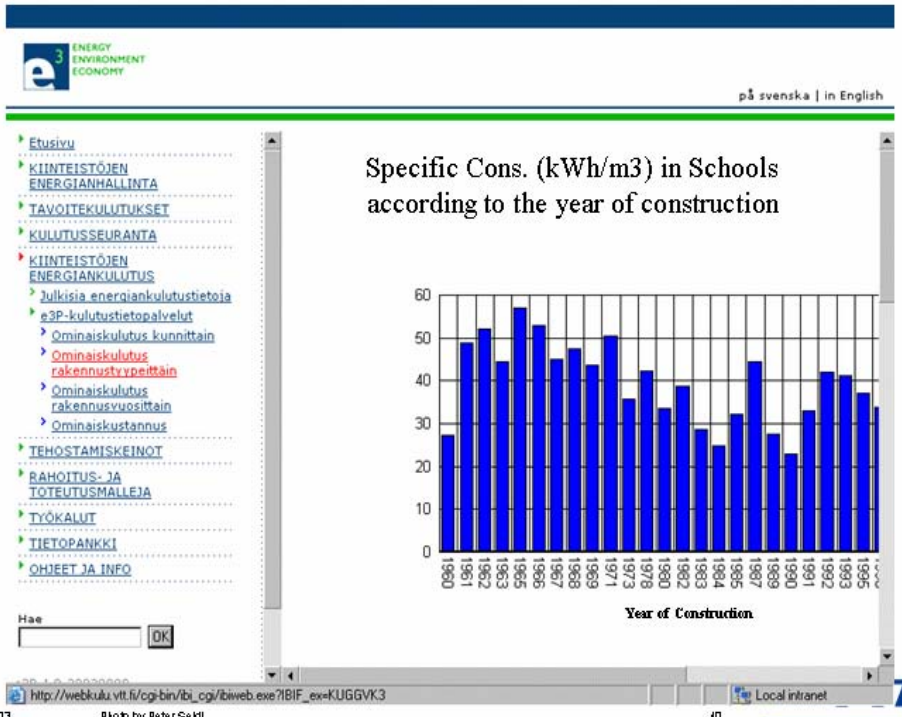

 Photo by Peter Seidl 40

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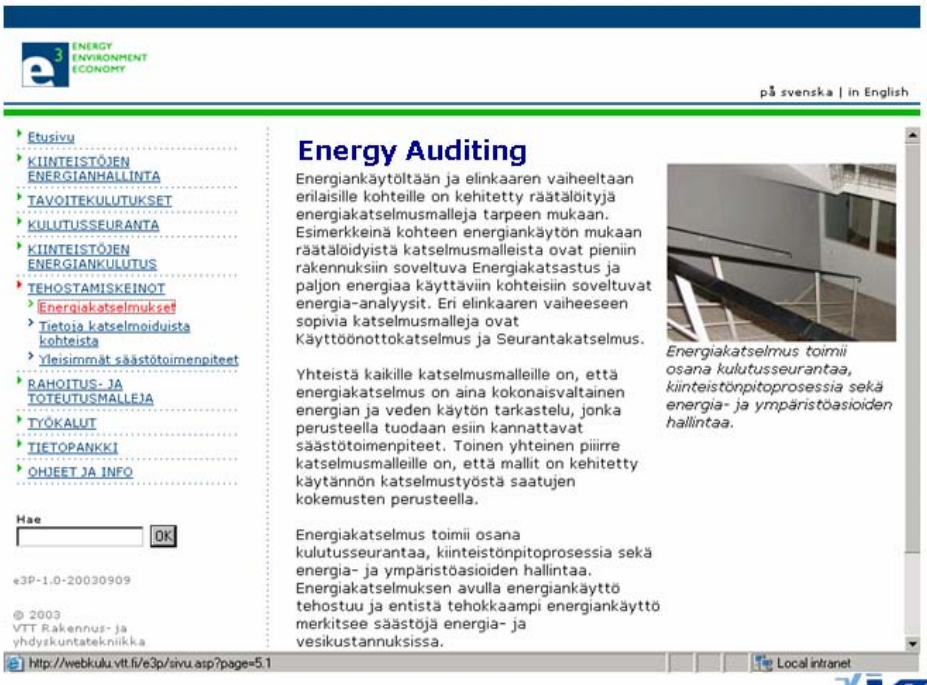
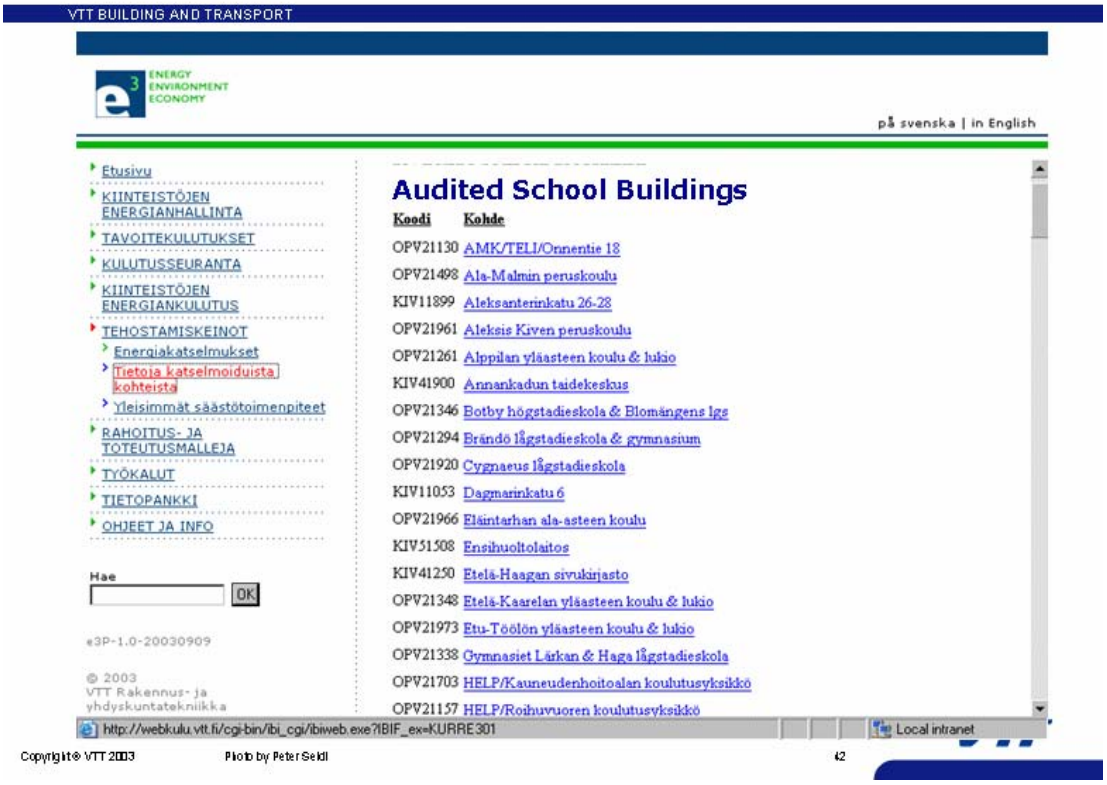


 Photo by Peter Seidl 41


VTT BUILDING AND TRANSPORT
ENERGY ENVIRONMENT ECONOMY
på svenska | in English
Etusivu
KIINTEISTÖJEN ENERGIANHALLINTA
TAVOITEKULUTUKSET
KULUTUSSEURANTA
KIINTEISTÖJEN ENERGIANKULUTUS
TEHOSTAMISKEINOT
Energiakatselmukset
Tietoja katselmoiduista kohteista
Yleisimmät säästötoimenpiteet
RAHOITUS- JA TOTEUTUSMALLEJA
TYÖKALUT
TIETOPANKKI
OHJEET JA INFO
Hae
OK
e3P-1.0-20030909
© 2003 VTT Rakennus- ja yhdyskuntatekniikka
Audited School Buildings
Koodi Kohde
OPV21130 AMK/TELI/Onnentie 18
OPV21498 Ala-Malmin peruskoulu
KIV11899 Aleksanterinkatu 26-28
OPV21961 Aleksis Kiven peruskoulu
OPV21261 Alppilan yläasteen koulu & lukio
KIV41900 Annankadun taidekeskus
OPV21346 Botby högstadieskola & Blomängens lgs
OPV21294 Brändö lågstadieskola & gymnasium
OPV21920 Cygnaeus lågstadieskola
KIV11053 Dagmarinkatu 6
OPV21966 Eläintarhan ala-asteen koulu
KIV51508 Ensihuoltolaitos
KIV41250 Etelä-Haagan sivukirjasto
OPV21348 Etelä-Kaarelan yläasteen koulu & lukio
OPV21973 Etu-Töölön yläasteen koulu & lukio
OPV21338 Gymnasiet Lärkan & Haga lågstadieskola
OPV21703 HELP/Kauneudenhoitoalan koulutusyksikkö
OPV21157 HELP/Roihuvuoren koulutusyksikkö
http://webkulu.vtt.fi/cgi-bin/ibi_cgi/ibiweb.exe?IBIF_ex=KURRE301
Local intranet
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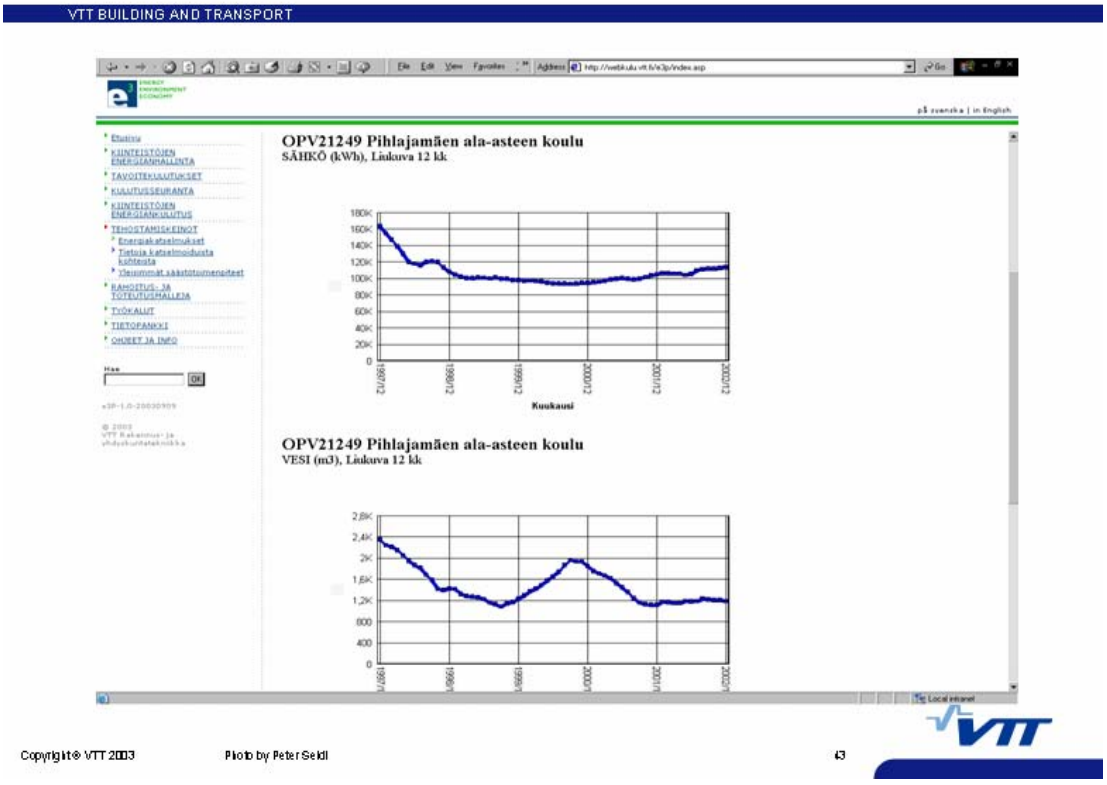
VTT BUILDING AND TRANSPORT
OPV21249 Pihlajamäen ala-asteen koulu
SÄHKÖ (kWh), Liukuva 12 kk
Kuukausi
OPV21249 Pihlajamäen ala-asteen koulu
VESI (m3), Liukuva 12 kk
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Photo by Peter Seidl
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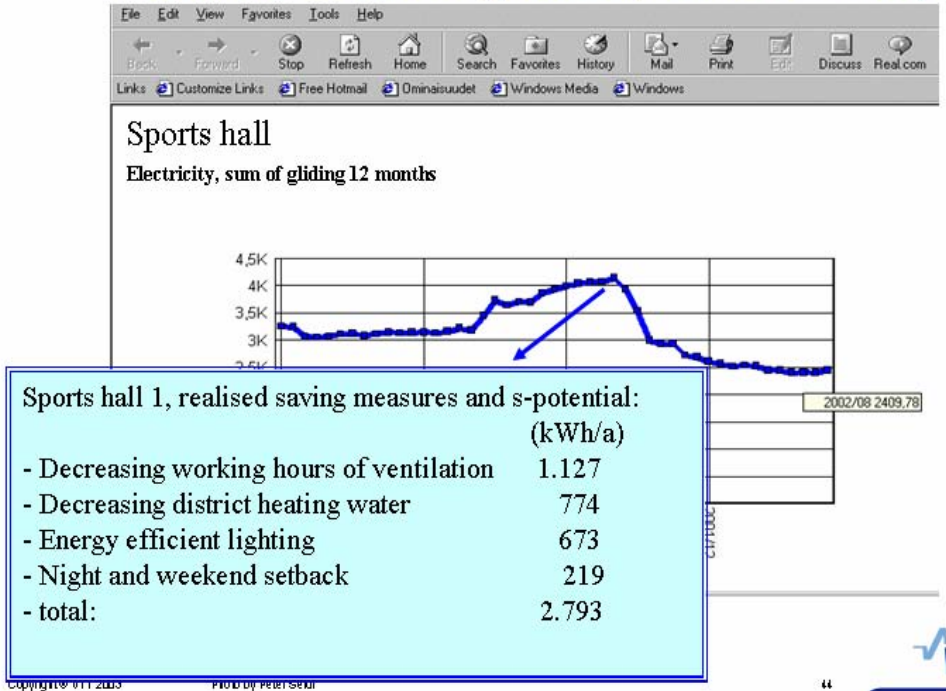
VTT BUILDING AND TRANSPORT

Information about energy audits (measures&effect):



Sports hall 1, realised saving measures and s-potential:

	(kWh/a)
- Decreasing working hours of ventilation	1.127
- Decreasing district heating water	774
- Energy efficient lighting	673
- Night and weekend setback	219
- total:	2.793

VTT BUILDING AND TRANSPORT

Motiva

Motiva is an impartial service organisation promoting a market for renewable energy sources and efficient energy use.

VTT BUILDING AND TRANSPORT

Motiva

Business Idea

Motiva implements

- the National Climate Strategy,
- the Energy Conservation Programme and
- the Action Plan for Renewable Energy Sources

by activating the market for energy conservation, energy efficiency and renewable energy sources.

 Photo by Peter Seidl 46

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 Photo by Peter Seidl 47

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Motiva

What is an Energy Audit?

- **With energy audits we mean a systematic procedure in existing buildings/ sites/objects where the purpose is to**
  - evaluate the existing energy consumption
  - identify the energy saving potential and find the potential of renewable energy sources
  - report and make detailed saving proposals

 Photo by Peter Seidl 48

VTT BUILDING AND TRANSPORT

Motiva

Energy auditing in Finland

Energy saving potential
Environmental requirements
Kioto Protocoll

Government subsidies
for energy auditing,
Motiva Auditing Models

Implementation of renewable energy sources, energy efficient technology and efficient energy use.

 Photo by Peter Seidl 49

VTT BUILDING AND TRANSPORT

Motiva

Subsidy policy

- Energy Auditing is voluntary
- Following the Audit Guidelines given by Motiva and MTI entitles the client to apply for audit subsidies
- The subsidy is specified yearly
- In 2002 the subsidy is 40 % of the approved auditing costs
- Subsidies for energy saving investments are available for companies etc. in Voluntary Agreements

 Photo by Peter Seidl 50

VTT BUILDING AND TRANSPORT

Motiva

Profitability of the proposed energy savings measures in the 1 265 buildings reported during period 1996-2001 (total 8,0 milj. €)

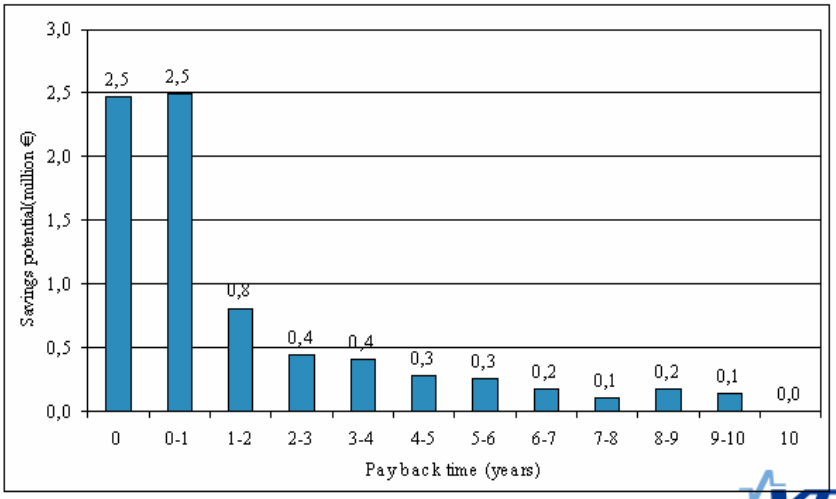


 Photo by Peter Seidl 51

VTT BUILDING AND TRANSPORT

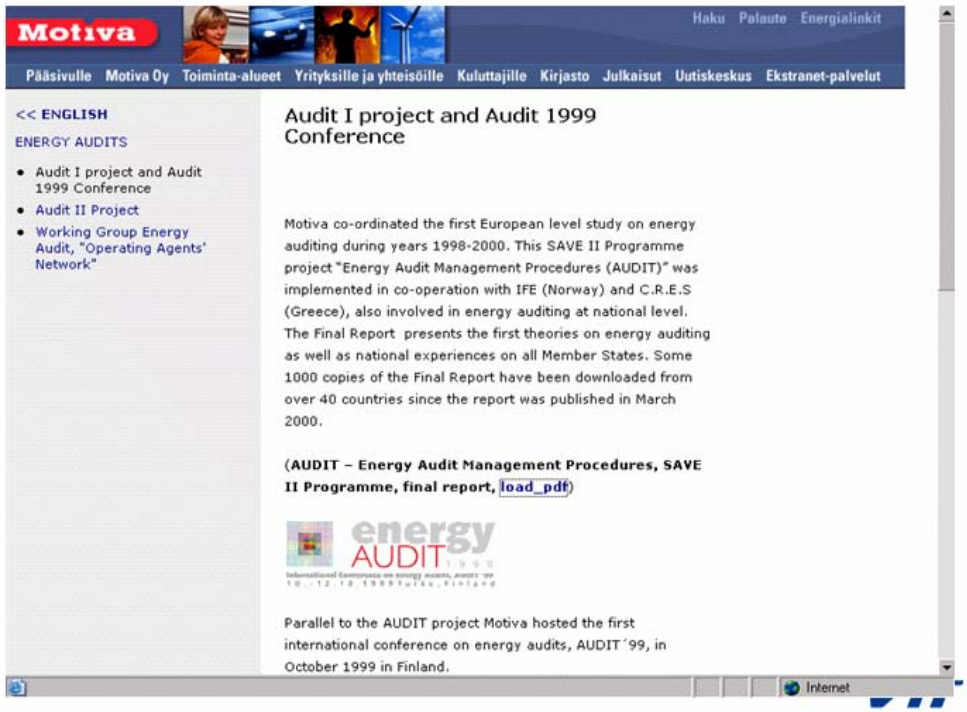


 Photo by Peter Seidl 52

VTT BUILDING AND TRANSPORT

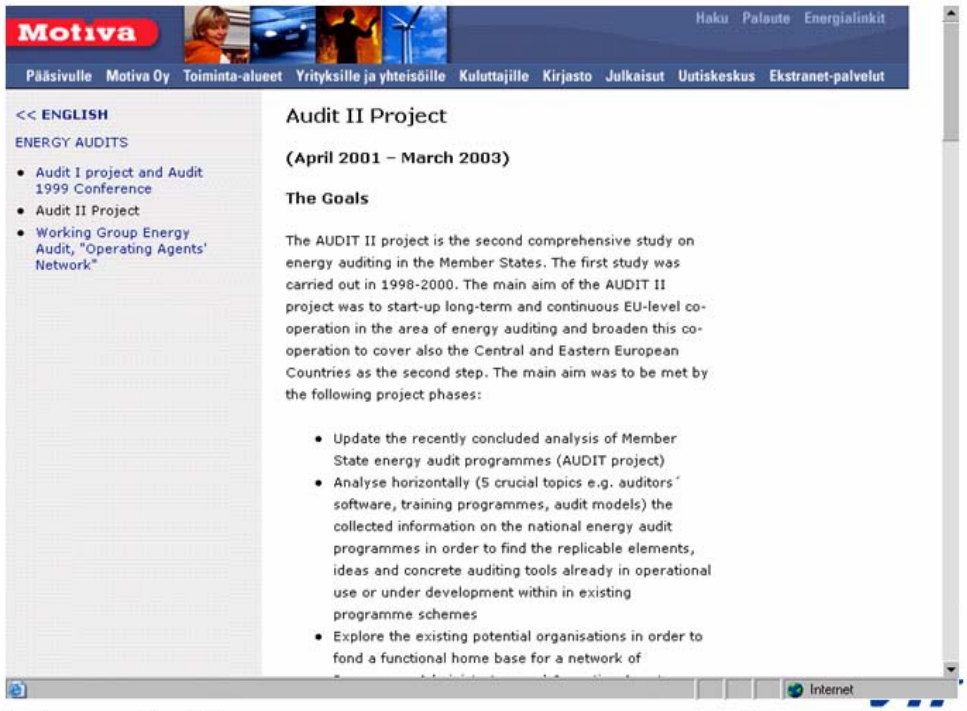
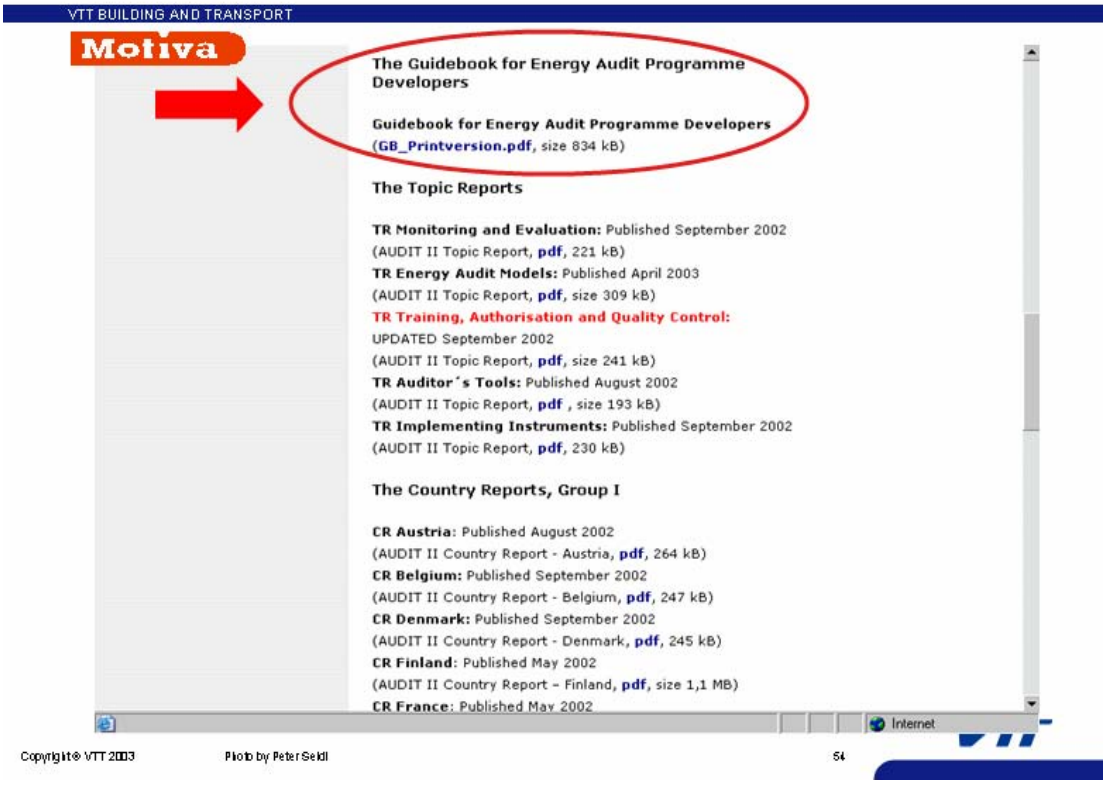


 Photo by Peter Seidl 53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Motiva
The Guidebook for Energy Audit Programme Developers
Guidebook for Energy Audit Programme Developers
(GB_Printversion.pdf, size 834 kB)
The Topic Reports
TR Monitoring and Evaluation: Published September 2002
(AUDIT II Topic Report, pdf, 221 kB)
TR Energy Audit Models: Published April 2003
(AUDIT II Topic Report, pdf, size 309 kB)
TR Training, Authorisation and Quality Control:
UPDATED September 2002
(AUDIT II Topic Report, pdf, size 241 kB)
TR Auditor´s Tools: Published August 2002
(AUDIT II Topic Report, pdf , size 193 kB)
TR Implementing Instruments: Published September 2002
(AUDIT II Topic Report, pdf, 230 kB)
The Country Reports, Group I
CR Austria: Published August 2002
(AUDIT II Country Report - Austria, pdf, 264 kB)
CR Belgium: Published September 2002
(AUDIT II Country Report - Belgium, pdf, 247 kB)
CR Denmark: Published September 2002
(AUDIT II Country Report - Denmark, pdf, 245 kB)
CR Finland: Published May 2002
(AUDIT II Country Report – Finland, pdf, size 1,1 MB)
CR France: Published May 2002
Internet
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VTT BUILDING AND TRANSPORT
Motiva
AUDIT II
Country Report
GERMANY
(Draft Version)
Michael Sattler
Final Report 13.12.2002
SAVE
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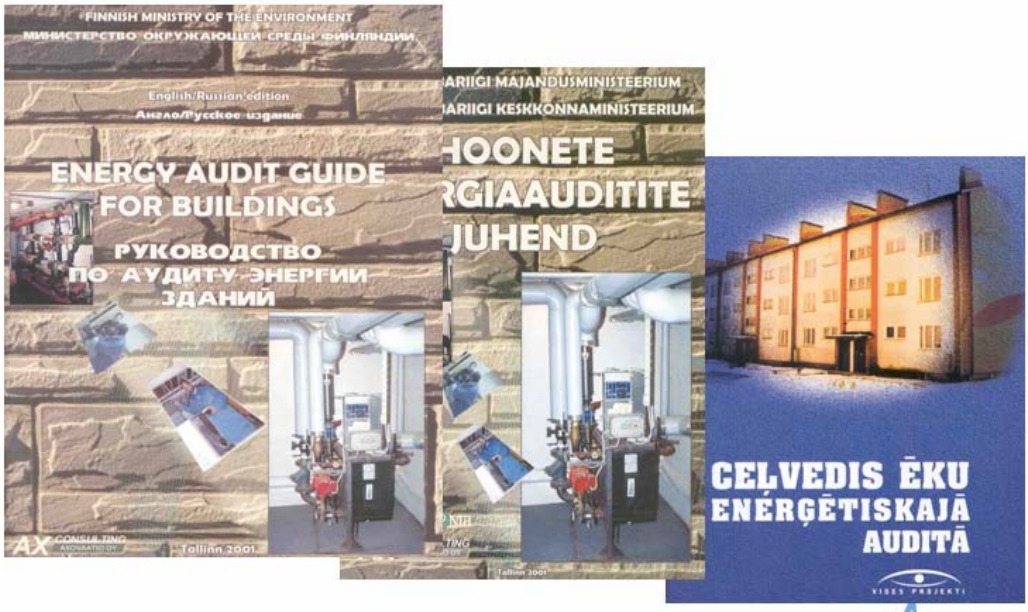
Tools for auditors (Motiwatti-software, manuals etc.)



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Motiva

Profitability of the proposed energy savings measures in the 1 265 buildings reported during period 1996-2001 (total 8,0 milj. €)

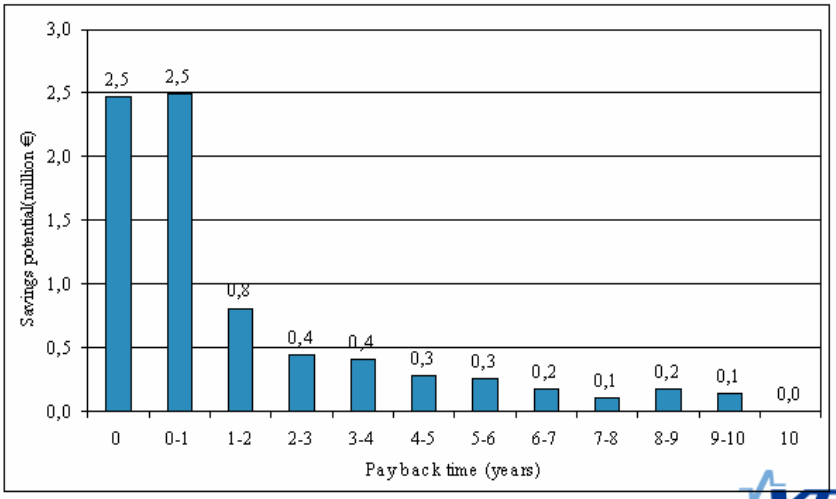

 Photo by Peter Seidl 57

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Implementing energy saving measures and investments

-Short pay-back times

- audit customers normally implement and finance energy saving investments by themselves

-Longer pay-back times

- suitable for ESCO companies
  - agreement periods normally 2…6 years
  - ESCO is responsible for the whole saving project (financing, saving guarantees, contracting, follow-up…)

 Photo by Peter Seidl 58

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Motiva

Motiva's role promoting ESCO–business in Finland

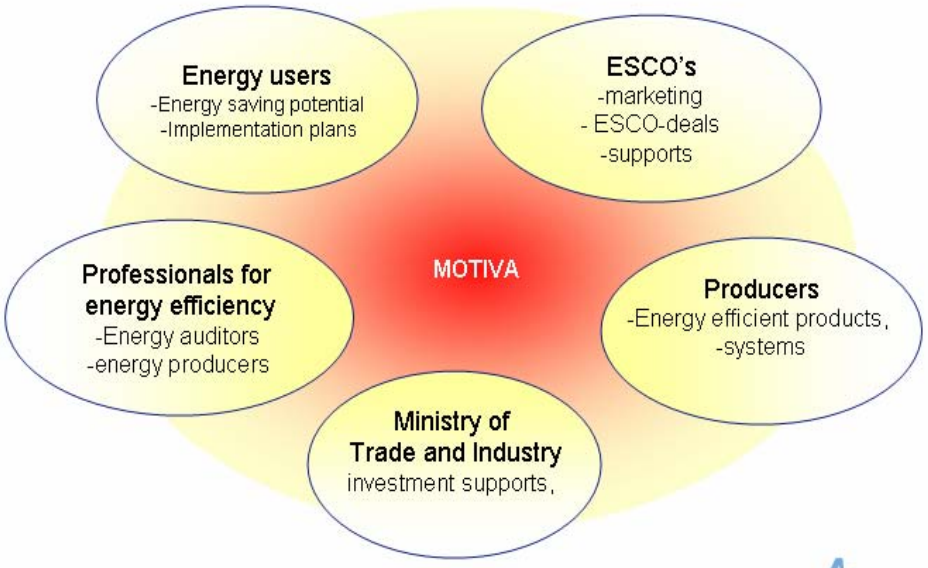

 Photo by Peter Seidl 59

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Motiva

ESCO-project register

- Target to promote ESCO-business
  - Contact information
  - Description of different kind and size of ESCO - projects
  - Following the ESCO- business volumes
- beginning : spring 2003

 Photo by Peter Seidl 60

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Motiva

Situation in 9.6.2003

- Information got from three ESCO's
- Total number of projects 25
- Estimated total energy savings
  - Steam 42 400 MWh/a
  - District heat 18 400 MWh/a
  - Electricity 2 500 MWh/a
- Renewables
  - 220 MWh/a oil repalced by wood pellets
  - Electric heating replaced by heat pumps

 Photo by Peter Seidl 61

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Motiva

Project examples

- heat recovery from industrial ovens
- heat recovery from exhaust air in industry
- improving the efficiency of a turbine
- replacing electric heating by heat pumps
- improving the control of a cooling systems in ice halls
- optimizing ice thickness in ice hall
- heat recovery from HVAC
- oil replacement by wood pellets
- many different heat recovery project in industrial processes

 Photo by Peter Seidl 62

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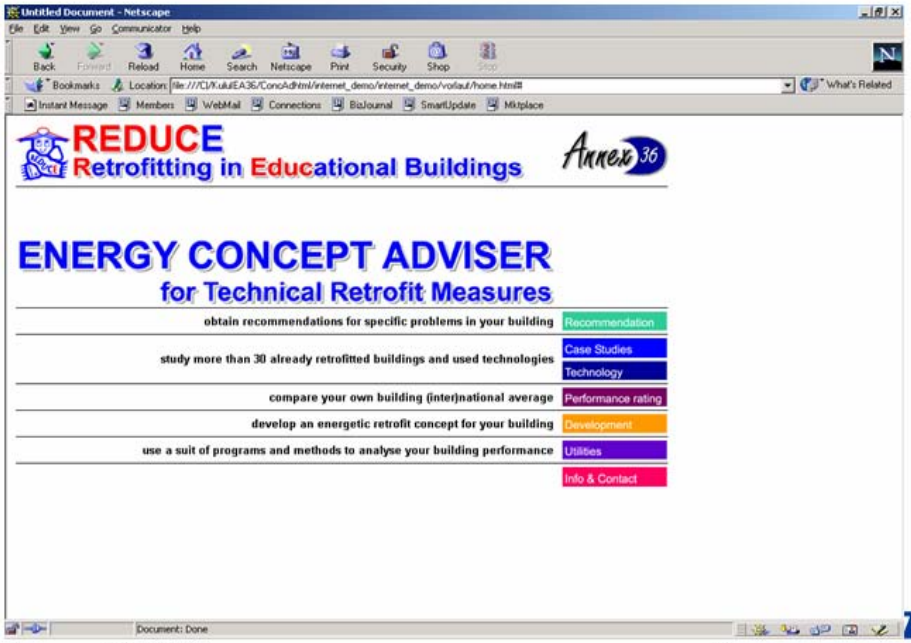
International collaboration, like IEA Annex36



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Annex40 (http://www.commissioning-hvac.org)

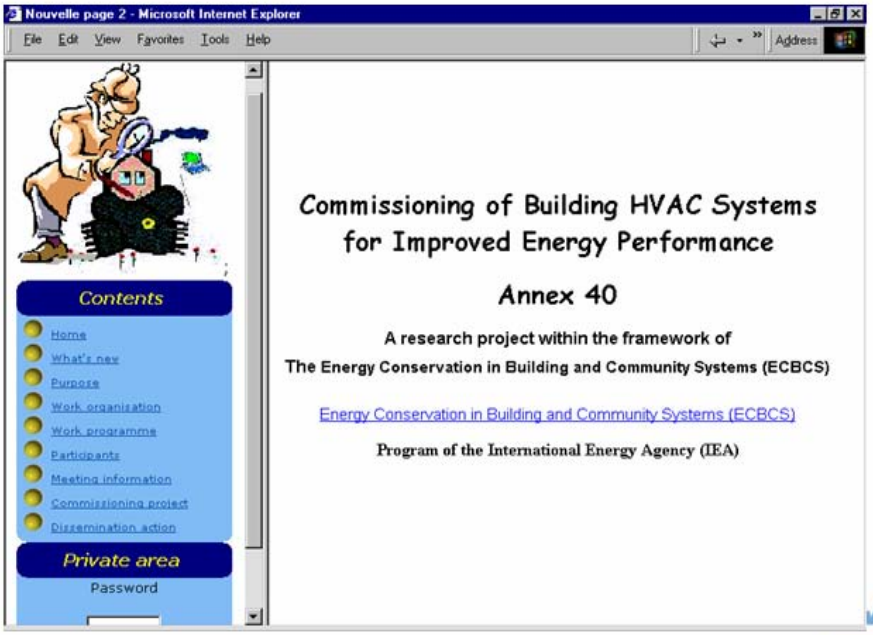

 Photo by Peter Seidl 64

VTT BUILDING AND TRANSPORT

Partnership and networking

Partners focus on their core expertise

Customer = Building owners and users focus on their core business and thus improve
- ☐ user friendliness
- ☐ operating conditions
- ☐ energy efficiency
- ☐ comfort
- ☐ productivity
- ☐ user service

Building service suppliers = Total accountability for building services
- ☐ good indoor enviroment
- ☐ healthiness
- ☐ information technology
- ☐ safety
- ☐ adaptability
- ☐ energy efficiency
- ☐ reportability

Cooperation
- ☐ partnership
- ☐ model agreements/ game rules
- ☐ shared benefits
- ☐ lifecycle economics
- ☐ needs/conditions
- ☐ environmental friendliness
- ☐ image

Real estate industry expertise
Professionals

Building services expertise

 Photo by Peter Seidl 65


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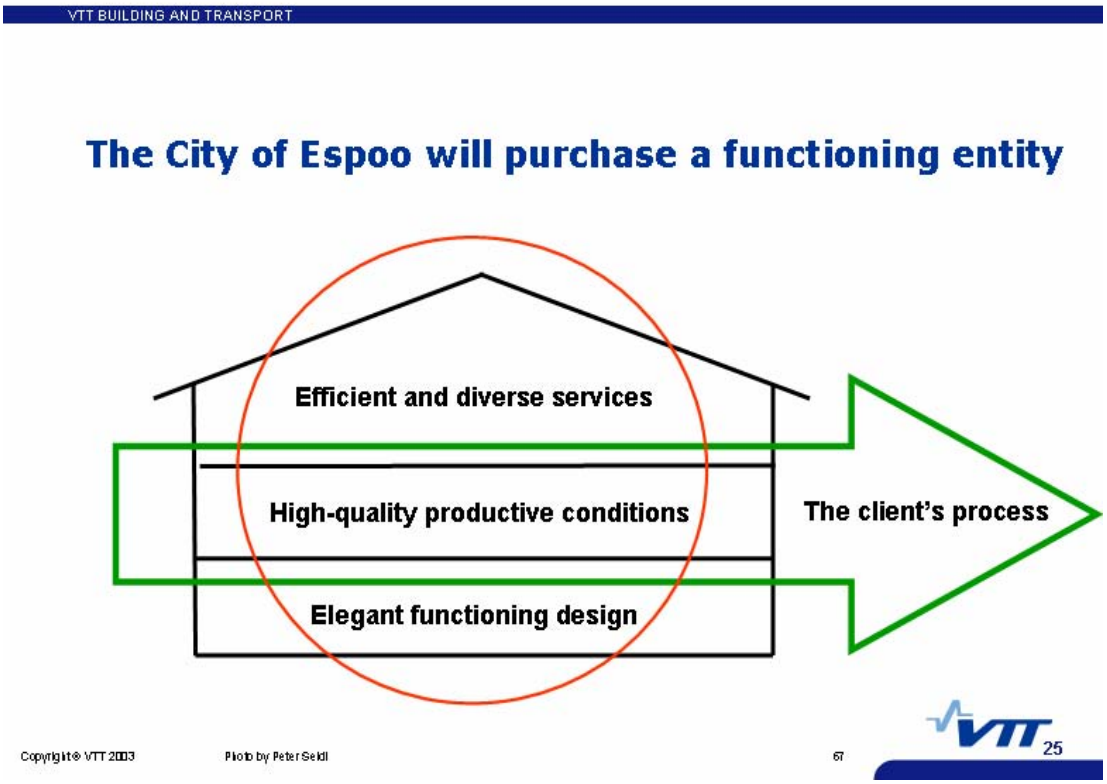
CASE
Kuninkaantie Senior Secondary School, Sports Hall
and Public Swimming Baths
VTT
23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The City of Espoo will purchase a functioning entity
Efficient and diverse services
High-quality productive conditions
Elegant functioning design
The client's process
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Photo by Peter Seidl
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VTT
25

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Kuninkaantie Senior High School

First public and private sector partnership project in Finland

The City of Espoo:

- purchases maintenance and user services from the project company
- pays only for services provided
- 28-year collaboration model, 25-year service agreement
- with the objective of transferring an optimum amount of project risks from the city to the private service provider

Service production to be launched in the autumn of 2003.

 Photo by Peter Seidl 68

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VTT BUILDING AND TRANSPORT

Roles and functions

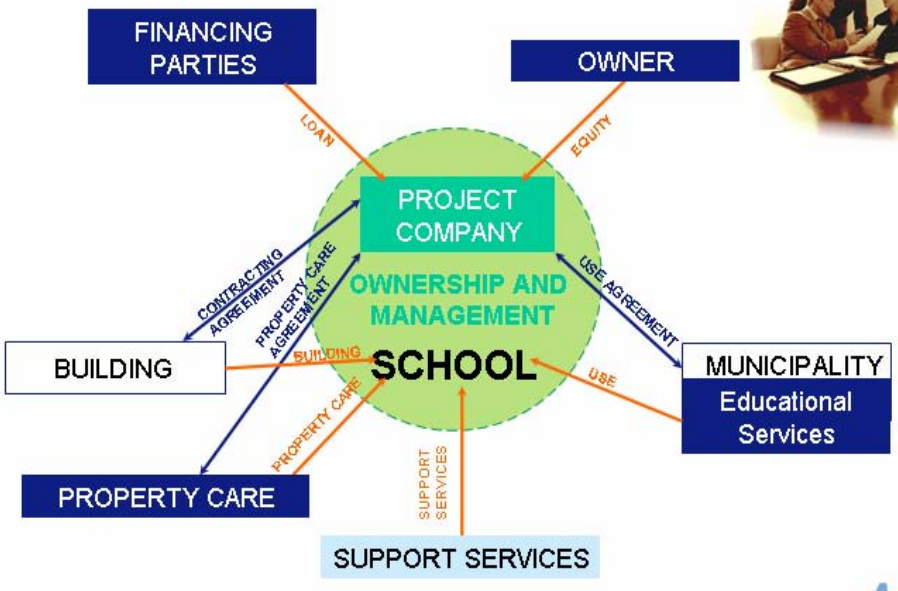

 Photo by Peter Seidl 69

VTT 27

VTT BUILDING AND TRANSPORT

Agreements and contracts

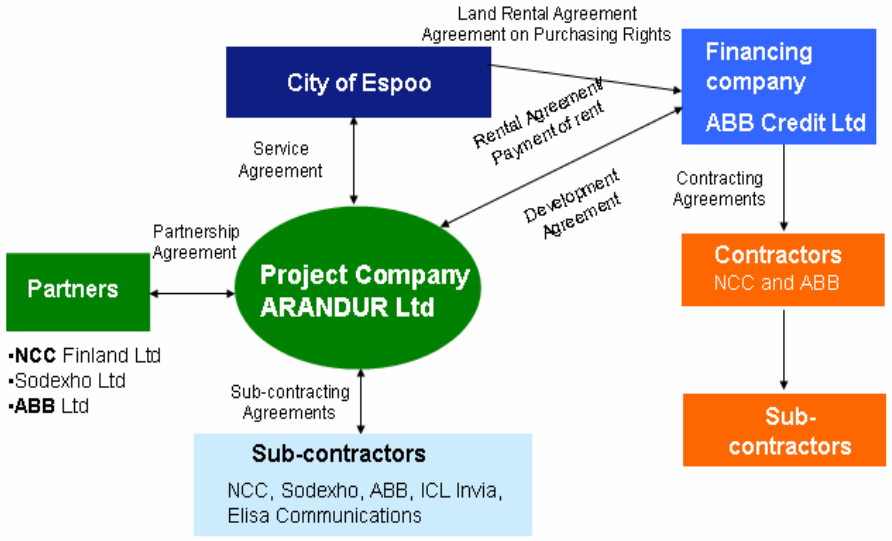

 Photo by Peter Seidl 70

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Thanks for your attention!

 Photo by Peter Seidl 71

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Thank you for your attention!

Jorma Pietiläinen (www.vtt.fi)

tel: +358-400-446258, email: jorma.pietilainen@vtt.fi

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Lars Hamberg (www.comsel.com)

Timo Kauppinen (www.vtt.fi)

Veli Mottonen (www.vtt.fi):

Pekka Huovila (www.vtt.fi):

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COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 11.5.2001
COM(2001) 226 final

2001/0098 (COD)

Proposal for a

DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

on the energy performance of buildings

(presented by the Commission)

Building Energy Certification
Energy Audit Procedures
New Building regulations

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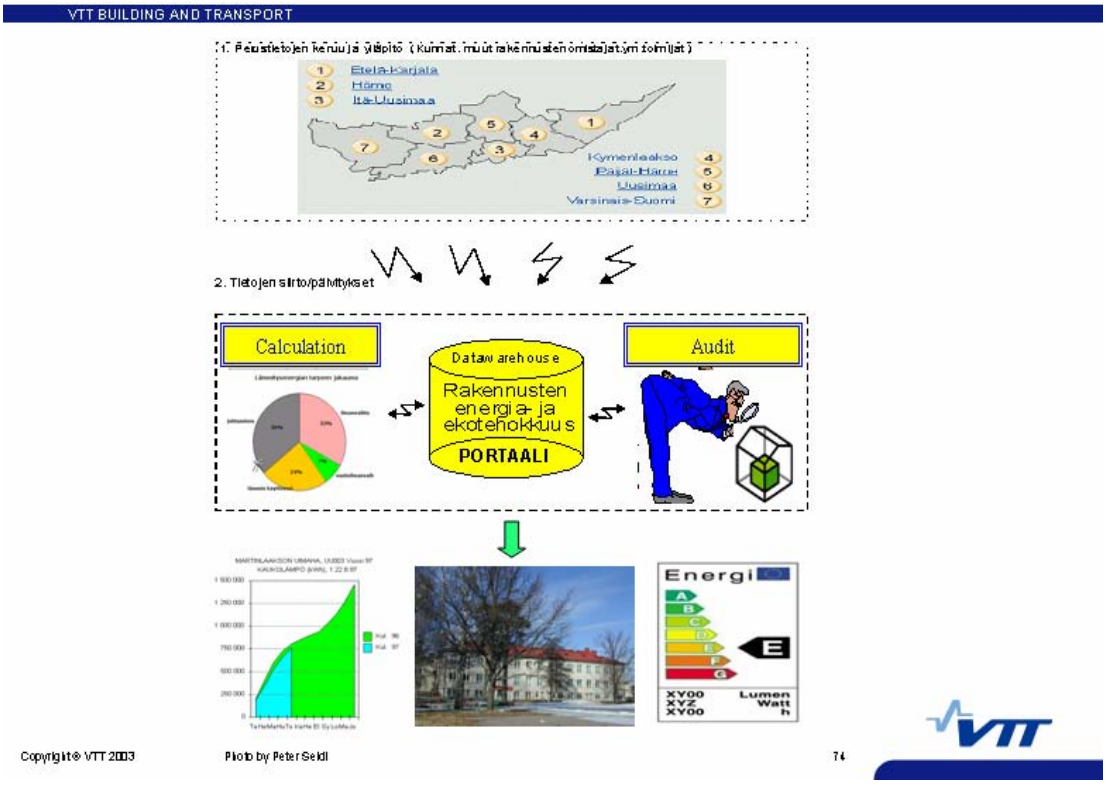
VTT BUILDING AND TRANSPORT
1. Perustietojen keruu ja ylläpito (kunnat, muut rakennusten omistajat,yrit toimijat)
1 Etelä-Karjala
2 Häme
3 Itä-Uusimaa
Kymenlaakso 4
Päijät-Häme 5
Uusimaa 6
Varsinais-Suomi 7
2. Tietojen siirto/päivitykset
Calculation
Data warehouse
Rakennusten energia- ja ekotehokkuus
PORTAALI
Audit
Energi
A
B
C
D
E
F
G
XYOO
XYZ
XYOO
Lumen
Watt
h
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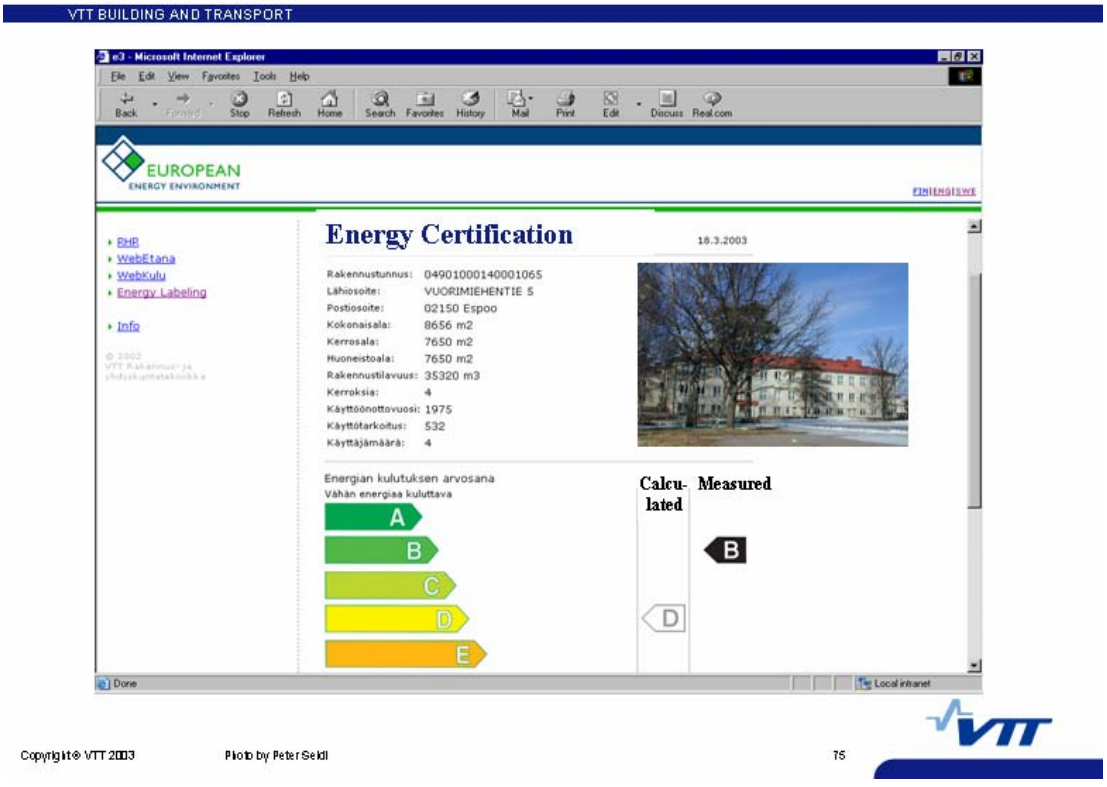
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e3 - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Discuss Real.com
EUROPEAN
ENERGY ENVIRONMENT
FIN|ENG|SWE
PHR
WebEtana
WebKulu
Energy Labeling
Info
Energy Certification
18.3.2003
Rakennustunnus: 04901000140001065
Lähiosoite: VUORIMIEHENTIE 5
Postiosoite: 02150 Espoo
Kokonaisala: 8656 m2
Kerrosala: 7650 m2
Huoneistoala: 7650 m2
Rakennustilavuus: 35320 m3
Kerroksia: 4
Käyttöönottovuosi: 1975
Käyttötarkoitus: 532
Käyttäjämäärä: 4
Energian kulutuksen arvosana
Vähän energiaa kuluttava
A
B
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D
E
Calcu-lated
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B
D
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Local intranet
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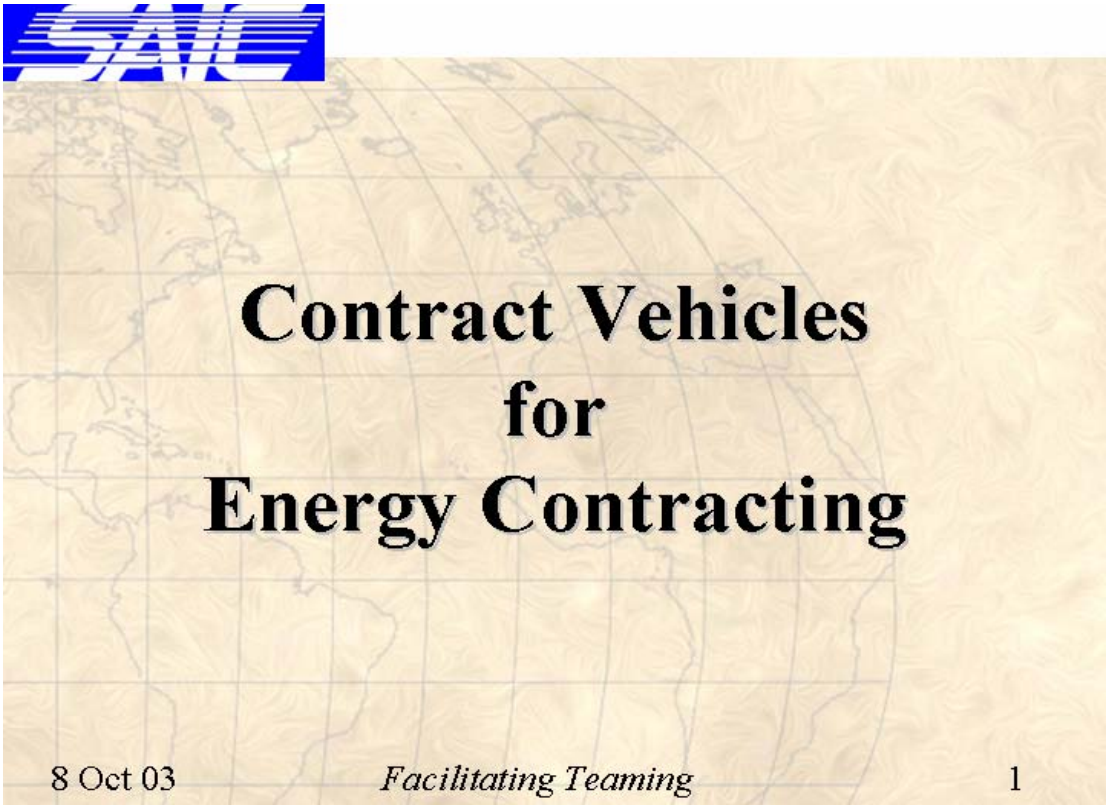
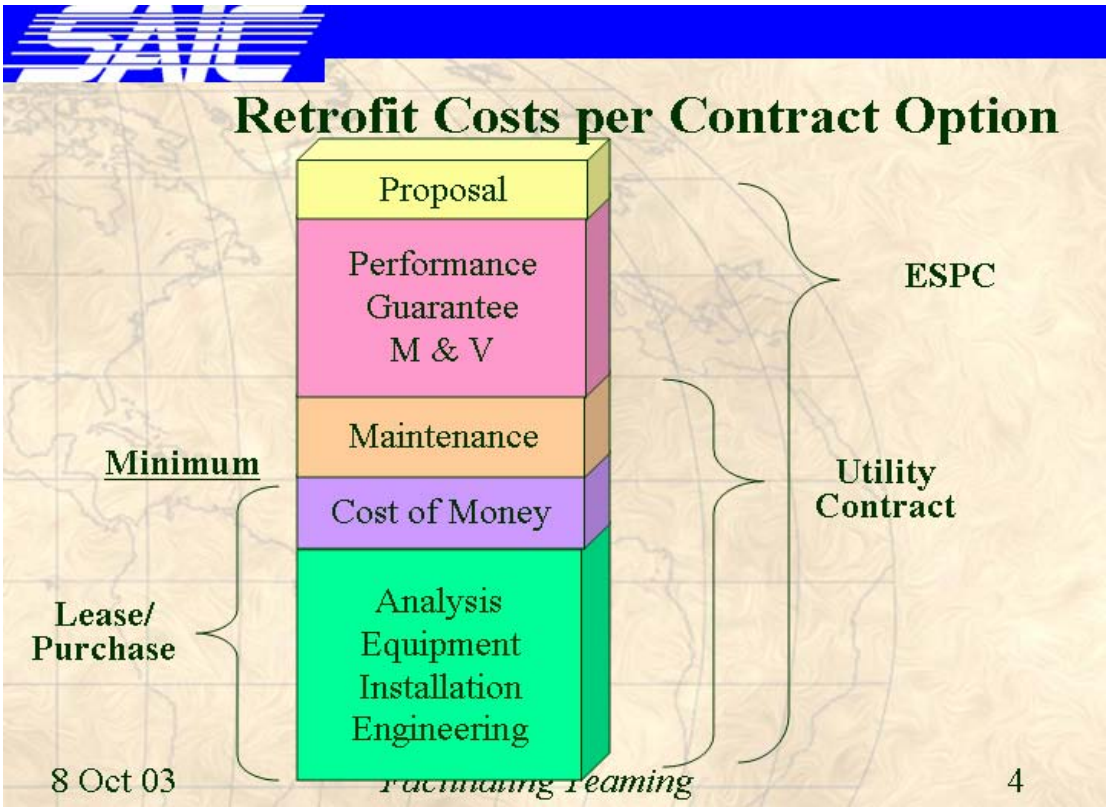
Energy Savings Performance Contracts - Vehicles and Financing Options

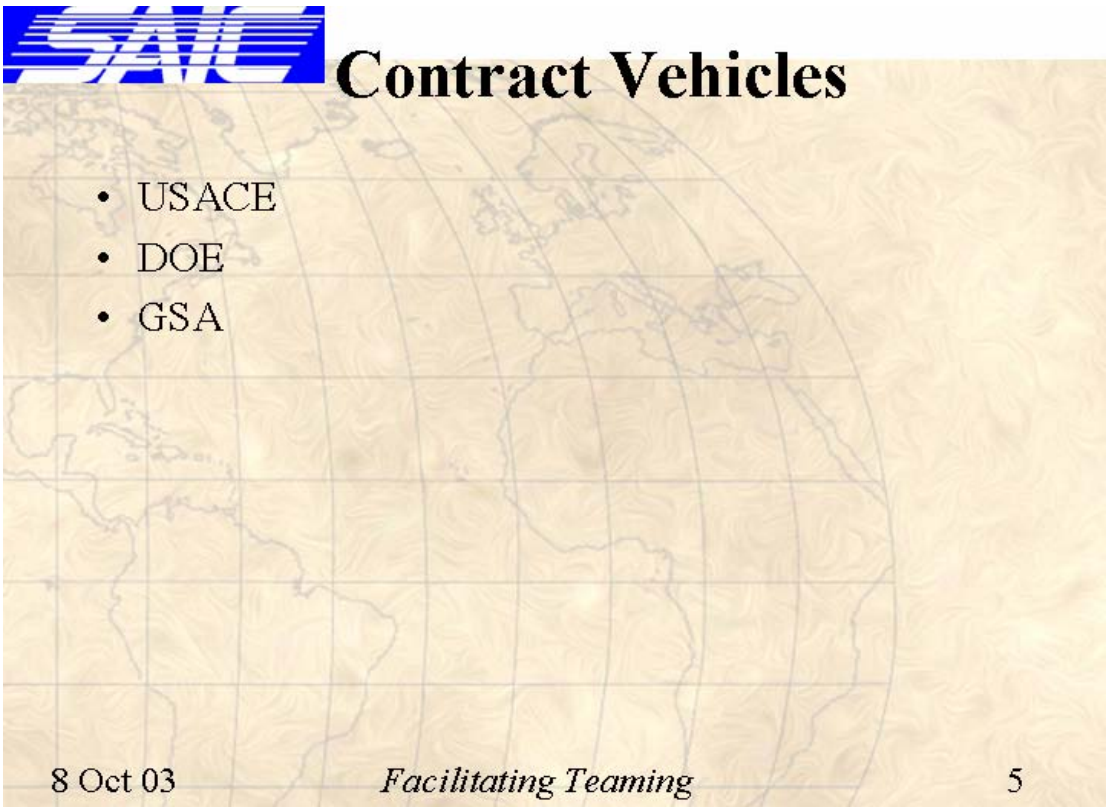
Presenter: Mr. Buster Barksdale, SAIC




Agenda
• Performance Contracts
• Contract Vehicles
• Financing
8 Oct 03
Facilitating Teaming
2


Performance Contracts
• ESPC
• UESC
• GSA
8 Oct 03
Facilitating Teaming
3


Retrofit Costs per Contract Option
Proposal
Performance Guarantee M & V
Maintenance
Cost of Money
Analysis Equipment Installation Engineering
ESPC
Utility Contract
Minimum
Lease/ Purchase
8 Oct 03
Facilitating Teaming
4


Contract Vehicles
• USACE
• DOE
• GSA
8 Oct 03
Facilitating Teaming
5

Contract Vehicles USACE

- Types
  - 4 State
  - 46 State
- Access
  - USACE with basic funding
- Advantages/Disadvantages
  - Large Experienced Staff
  - Understands Army
  - Ties into USACE Infrastucture
  - Costs most to Installation
  - Slow Execution

8 Oct 03 *Facilitating Teaming* 6

USACE Contracts

4-State Area	46 State Area
(GA, SC, NC, VA)	(Remaining states plus DC and Puerto Rico)
Co-Energy	Abacus
Duke Solutions	CMS Viron
Honeywell	Duke Solutions
NORESCO	Energy Masters International
Select Energy	Honeywell International
Systems Corps	Johnson Controls
	NORESCO
	Select Energy Services
	Sempra Energy Services
	XENERGY

8 Oct 03 *Facilitating Teaming* 7

Contract Vehicles
DOE

- Types
  - Regional
- Access
  - Local CO
  - DESC
  - Other CO
- Advantages/Disadvantages
  - Lower Cost
  - Flexible Execution Through any CO
  - Faster Execution
  - Does not Speak Army
  - Need Facilitators

8 Oct 03 *Facilitating Teaming* 8

DOE

Western	Central	Midwest	Southeast	Mid-Atlantic	Northeast
Honeywell	Duke	Cogenex	Duke	Cogenex	Honeywell
Johnson	Honeywell	Duke	Energy Masters	Honeywell	Invensys
NORESCO	Johnson	Johnson	Honeywell	Invensys	Johnson
Sempra	NORESCO	NORESCO	Johnson	NORESCO	NORESCO
	Sempra	Sempra	NORESCO	Select Energy	Select Energ
			Sempra		Sempra
					XENERGY

8 Oct 03 *Facilitating Teaming* 9

DOE ESPC

Geothermal	Photovoltaic	Solar Thermal	Bio Mass
Constellation	Select Energy	Industrial Solar	Award in January 2002
Duke	Sempra		
Energy Performance Services			
Enron			
Trane			

Contract Vehicles GSA

- Types
  - Basic Schedule
- Access
  - Local CO
  - GSA Dallas Specialized CO
  - Other CO
- Advantages/Disadvantages
  - Fastest Execution
  - Least Cost
  - No Technical Support
  - Lack of Contract Vehicle Familiarity
  - Needs Facilitator

Contract Vehicles
GSA

- ID/IQ Contracts offering a Wide Range of Products and Services at Commercial Prices
- Best Value
- Commercial Practices
- Contractors may team with other Schedule contractors to offer a Total Solution.

8 Oct 03 *Facilitating Teaming* 12

Contract Vehicles
GSA

- Simplified Ordering Procedures
- Flexibility
- Maximum Order Provisions
- Price Reductions
- Blanket Purchase Agreements
- Teaming
- Purchase Card
- Socio-economic goals

8 Oct 03 *Facilitating Teaming* 13

UESC

- A vehicle for developing, financing, and implementing comprehensive energy/water-conservation projects for federal facilities
- Utilities provide up-front project funding and agencies pay for the services over time on their utility bills
- Utilities have a long-term interest in their customers, and that's helped us get great deals that meet our needs.

UESC

- Financing
- Minimizes time and resources required for procurement
- One-stop shopping for turnkey project
- Dealing with known entity
- Payment through utility bill
- Flexibility in contract terms

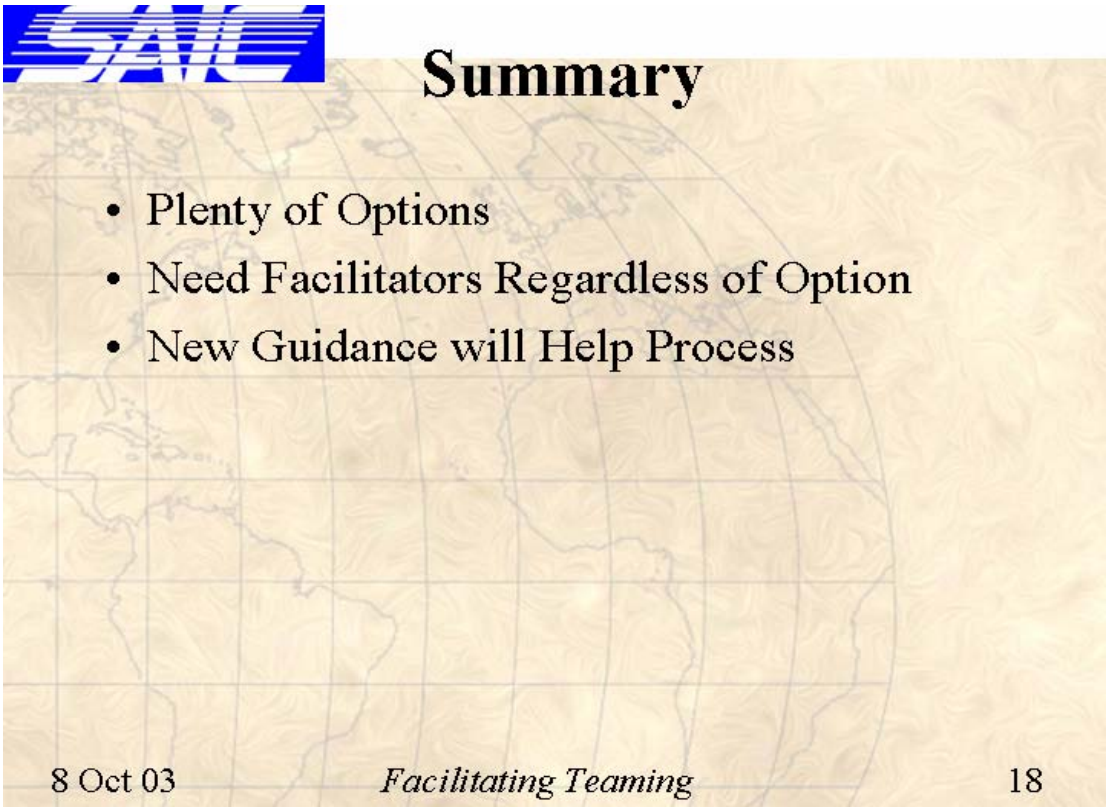
UESC

10 USC 2865 and 2866

- May enter into "sole source" procurement from gas or electric utilities to design and implement cost effective demand and conservation services
- May implement projects with a positive Net Present Value (measured over a period of 10 years or less)
- Can count water cost savings in their economic analysis

Financing

- 3rd Party
- BPA
- Lease
- Enhanced Use Lease


Summary
• Plenty of Options
• Need Facilitators Regardless of Option
• New Guidance will Help Process
8 Oct 03
Facilitating Teaming
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