

Modul 3.2

EINSTEIN – Schnell-Audit

EINSTEIN – Schnell-Audit...

✓ Ziel eines Schnell-Audits:

- Oft ist der Beginn eines Audits mit einer begrenzten Anzahl von verfügbaren Daten gekennzeichnet
- EINSTEIN kann mit sehr wenigen verfügbaren Daten eine erste Abschätzung der Verteilung des Energieverbrauchs und potenzieller Alternativen erstellen
- Beim detaillierten Audit kann man sich dann auf jene Teile mit den höchsten potenziellen Einsparungen konzentrieren

EINSTEIN – Schnell Audit...

✓ Zu erhebende Daten / Daten wahrscheinlich verfügbar:

- Betriebsdauer: Schicht-Anzahl; Stunden pro Tag; Tage pro Woche;
- Kessel: Nennleistung; Brennstoffverbrauch pro Jahr;
- Kälteanlagen: Nennleistung
- Strom: Verbrauch pro Jahr
- Kosten (Tarife/Preise): Strom, Brennstoffe

EINSTEIN – Schnellaudit...

✓ Zu erhebende Daten / Daten wahrscheinlich verfügbar:

- Mehrere Produkte:
 - Im Falle von Produktionslinien mit unterschiedlichen Produkten: Konzentration auf jene Produkte mit höchster Produktion
- Prozesse:
 - Einfache Fussdiagramme
 - Temperaturen (Batch: Inbetriebnahme, max/min & Endtemperatur)
kontinuierliche Prozesse: Eintritt & Austritt)
 - Volumenstrom oder Batch-Volumen
 - Produktionsniveau (Batch Anzahl /produzierte Volumina)
 - Konzentration auf Prozessschritte mit ws. großer thermischer Last: Beachte insbesondere Phasenübergänge, hohe Temperaturdifferenzen

Dateneingabe...

Project **EINSTEIN Milk Industry** Alternative **present state (original)** Design assistant **automatic**

Descriptive data Technical data Heat source / sink Schedule

Descriptive data

Equipment list

- Boiler 1
- Boiler 2

Geben Sie die Daten in den dafür vorgesehenen Feldern ein

Short name of equipment

Manufacturer

Year of manufacturing or/and installation?

Model

Type of equipment

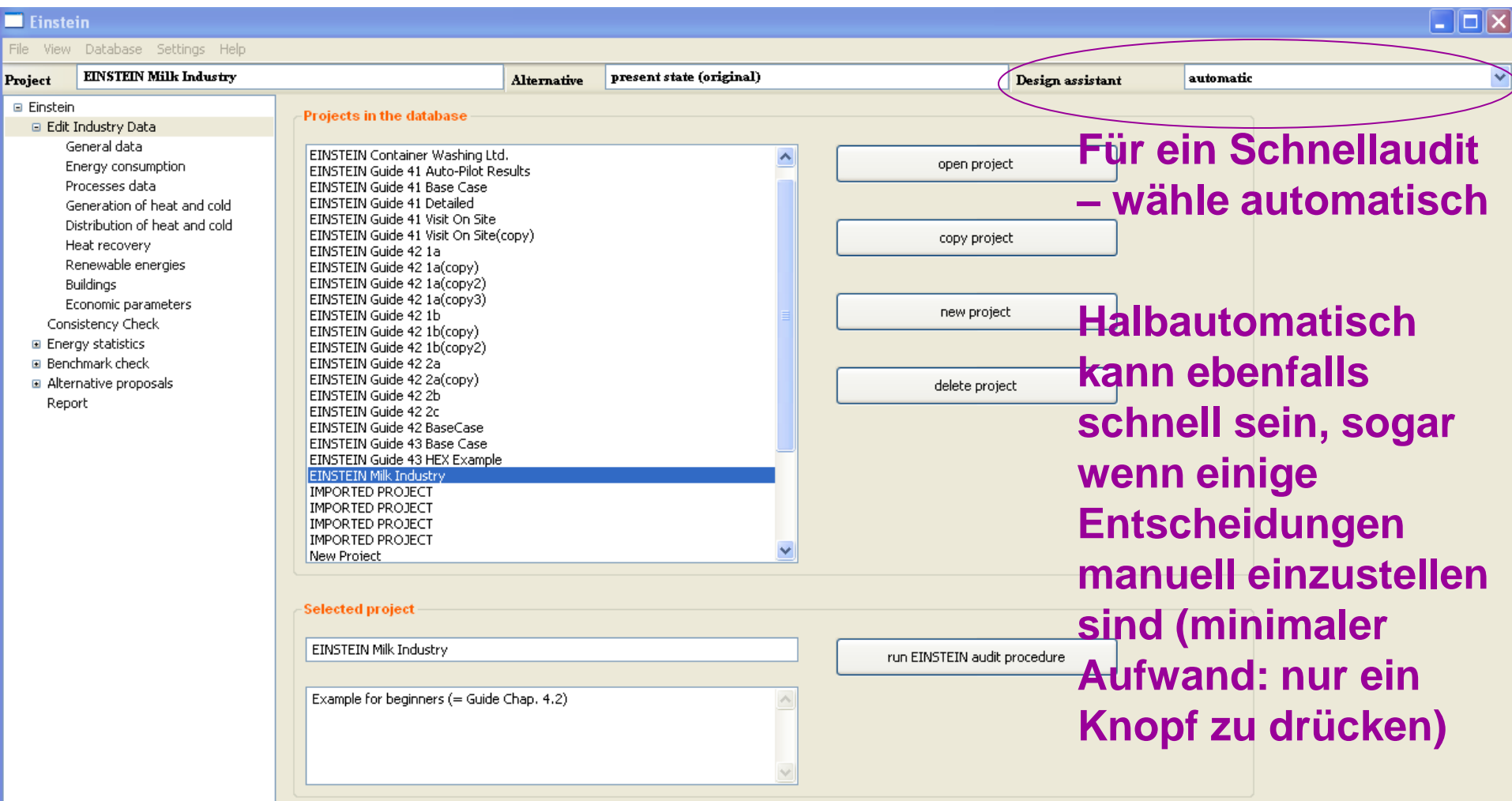
Number of units of the same type

Add equipment

Delete equipment

Cancel OK

Designassistent...



The screenshot shows the Einstein software interface. The top menu bar includes 'File', 'View', 'Database', 'Settings', and 'Help'. The 'Project' dropdown is set to 'EINSTEIN Milk Industry'. The 'Alternative' dropdown is set to 'present state (original)'. The 'Design assistant' dropdown is set to 'automatic', which is circled in red. The left sidebar shows a tree view of the project structure, including 'General data', 'Energy consumption', 'Processes data', 'Generation of heat and cold', 'Distribution of heat and cold', 'Heat recovery', 'Renewable energies', 'Buildings', 'Economic parameters', 'Consistency Check', 'Energy statistics', 'Benchmark check', 'Alternative proposals', and 'Report'. The main area displays a list of projects in the database, including 'EINSTEIN Container Washing Ltd.', 'EINSTEIN Guide 41 Auto-Pilot Results', 'EINSTEIN Guide 41 Base Case', 'EINSTEIN Guide 41 Detailed', 'EINSTEIN Guide 41 Visit On Site', 'EINSTEIN Guide 41 Visit On Site(copy)', 'EINSTEIN Guide 42 1a', 'EINSTEIN Guide 42 1a(copy)', 'EINSTEIN Guide 42 1a(copy2)', 'EINSTEIN Guide 42 1a(copy3)', 'EINSTEIN Guide 42 1b', 'EINSTEIN Guide 42 1b(copy)', 'EINSTEIN Guide 42 1b(copy2)', 'EINSTEIN Guide 42 2a', 'EINSTEIN Guide 42 2a(copy)', 'EINSTEIN Guide 42 2b', 'EINSTEIN Guide 42 2c', 'EINSTEIN Guide 42 BaseCase', 'EINSTEIN Guide 43 Base Case', 'EINSTEIN Guide 43 HEX Example', 'EINSTEIN Milk Industry' (highlighted), 'IMPORTED PROJECT', 'IMPORTED PROJECT', 'IMPORTED PROJECT', and 'New Project'. To the right of the list are buttons for 'open project', 'copy project', 'new project', and 'delete project'. Below the list is a section for the 'Selected project', which shows 'EINSTEIN Milk Industry' and 'Example for beginners (= Guide Chap. 4.2)'. A button labeled 'run EINSTEIN audit procedure' is located at the bottom right.

Für ein Schnellaudit – wähle automatisch

Halbautomatisch kann ebenfalls schnell sein, sogar wenn einige Entscheidungen manuell einzustellen sind (minimaler Aufwand: nur ein Knopf zu drücken)

Analyseniveau...

Einstein

File View Database Settings Help

Project

sunny brew

Alternative

present state (original)

Design assistant

automatic

Einstein

Edit Industry Data

General data

Energy consumption

Processes data

Generation of heat and cold

Distribution of heat and cold

Heat recovery

Renewable energies

Buildings

Economic parameters

Consistency Check

Energy statistics

Annual data

Primary energy

Final energy by fuels

Final energy by equipment

Heat demand (proc.)

Heat demand (temp.)

Heat demand (time)

Energy intensity

Monthly data

Hourly performance data

Benchmark check

Global energy intensity

SEC by product

SEC by process

Alternative proposals

Design

Process optimisation

HX network

H&C Supply

H&C Storage

CHP

Cross checking of data

list of data with insufficient accuracy

required accuracy

standard

Quick & dirty

Standard

Detailed

| | Name | Description | Value | max. Error | |
|-----|------|-------------|-------|------------|--|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| ... | | | | | |

basic check

estimate data

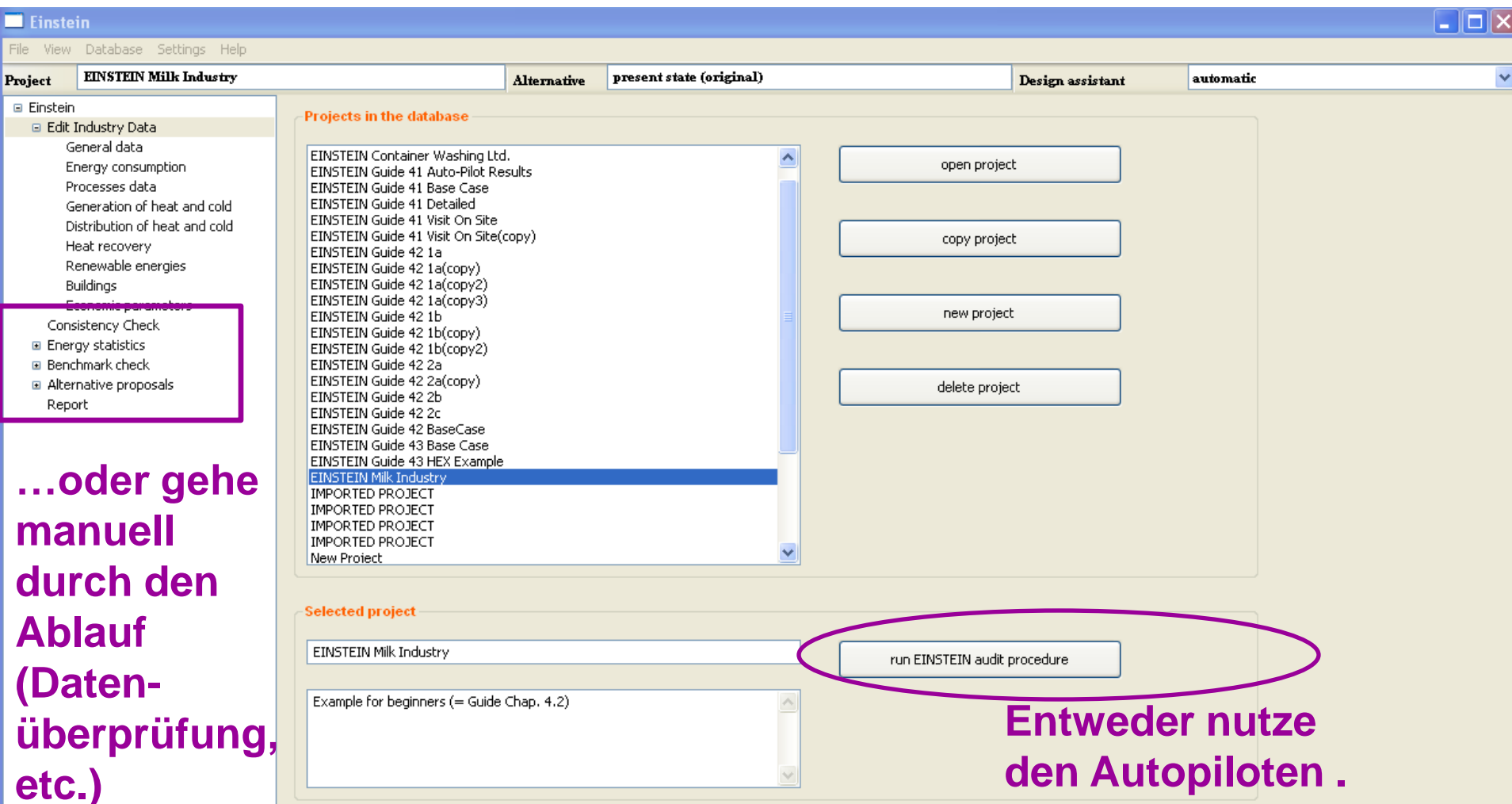
check list

Cross check statistics

| | |
|-------------------------|-----|
| No. of data checked | 0 |
| No. of input data fixed | --- |
| No. of missing data | 0 |

Für Schnell-Audits
wähle
Quick & Dirty

Starte EINSTEIN...



The screenshot shows the Einstein software interface. The top menu bar includes 'File', 'View', 'Database', 'Settings', and 'Help'. The 'Project' dropdown is set to 'EINSTEIN Milk Industry'. The 'Alternative' dropdown is set to 'present state (original)'. The 'Design assistant' dropdown is set to 'automatic'.

On the left, the 'Edit Industry Data' menu is expanded, showing options like 'General data', 'Energy consumption', 'Processes data', 'Generation of heat and cold', 'Distribution of heat and cold', 'Heat recovery', 'Renewable energies', 'Buildings', 'Economic parameters', 'Consistency Check', 'Energy statistics', 'Benchmark check', 'Alternative proposals', and 'Report'. The 'Economic parameters' option is highlighted with a red box.

In the center, the 'Projects in the database' list shows various projects, with 'EINSTEIN Milk Industry' selected. To the right of this list are buttons for 'open project', 'copy project', 'new project', and 'delete project'.

At the bottom, the 'Selected project' section shows 'EINSTEIN Milk Industry' in the first field and 'Example for beginners (= Guide Chap. 4.2)' in the second field. A red oval highlights the 'run EINSTEIN audit procedure' button.

...oder gehe
manuell
durch den
Ablauf
(Daten-
überprüfung,
etc.)

Entweder nutze
den Autopiloten .