CREATIV cases

The following presentation of the Creativ cases was presented and accepted by the Stearing committee 2.nov 2010.

The Creativ cases will be dynamic, and changes may occur during the project periode

D1.4.4 Selection of cases

Creativ cases

Case 1: Exploitation of high temperature surplus heat

1.1 Production of electricity from high temp surplus heat (SP2)

1.2 Optimal exploitation from lower temperature surplus heat (SP3 and SP4)

Case 2: Energy efficient industry cluster (SP3)

Case3.1: RSW

Case3.2: Freezing tunnels

Case3.3: Clip fish tunnels

Case 3: Control of heat pump processes (SP4)

Case 4: ”Oil free” supermarkets (SP4)

Case 5: Energy saving by hot water tanks (SP3)

Case 6: Superchilling vs. traditional – energy (SP3)

Potential cases

A - Energy reduction during dewatering of storage air

Dewatering system for control of humidity in storage rooms is energy ineffectiv. New energy saving system is initiated by TINE, but have to be verified

B - Energy reduction drying of fish feed

Drying of fish feed demands a lot of energy, and there is a high potential for savings. Measurement on a defined plant, and solutions for energy savings must be done. FHL

C - Innovative component development to enhance a more compact and cost efficient system utilizing the thermophysical properties of ammonia/water mix

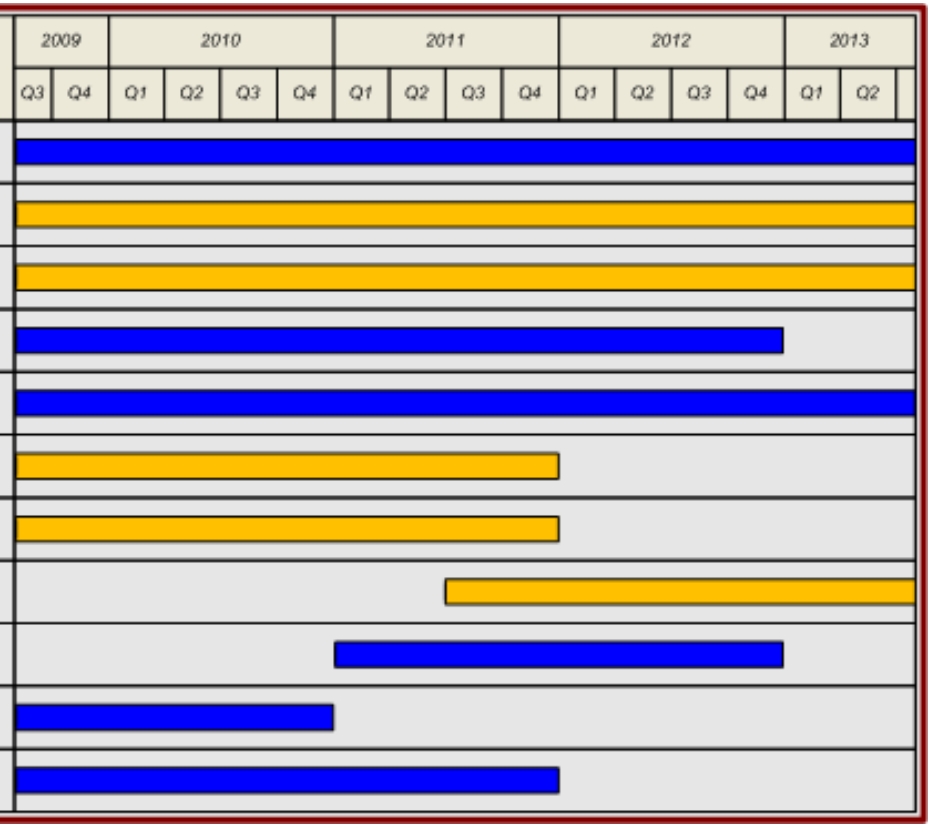
D - Methods for improved heat and mass transfer in the absorber and desorber

E - Drying of biomass - Norske skog

F - Bio syntetic gas for power/energy production - Norske skog

Cases – Time Scedule

ID	Task Name	Start	Finish
1	**Case 1: Exploitation of high temperature surplus heat**	2009-08-03	2013-08-02
2	1.1 Production of electricity from high temp surplus heat (SP2)	2009-08-03	2013-08-02
3	1.2 Optimal exploitation from lower temperature surplus heat (SP3, SP4)	2009-08-03	2013-08-02
4	**Case 2: Energy efficient industry cluster (SP3)**	2009-08-03	2012-12-28
5	**Case 3: Control of heat pump processes (SP4)**	2009-08-03	2013-07-30
6	3.1: RSW	2009-08-03	2011-12-30
7	3.2: Freezing tunnels	2009-08-03	2011-12-30
8	3.3: Clip fish tunnels	2011-07-01	2015-07-02
9	**Case 4: "Oil free" supermarkets (SP4)**	2011-01-03	2012-12-28
10	**Case 5: Energy saving by hot water tanks (SP3)**	2009-08-03	2010-12-30
11	**Case 6: Superchilling vs. traditional - energy (SP3)**	2009-08-03	2011-12-30



The case studies are dynamic, and time scedule may be changed according to PMG desitions.

Creativ case 1

Exploitation of high temperature surplus heat

Coordinator: Yves Ladam (SP2)

Goal: Establish system solutions for exploitation of surplus heat**.**

Description: ”Umbrella case”. Focus on exploitation of high temperature surplus heat from HAL. The case is seen as a package of exploitation of surplus heat with production of el-power from the highest temp (1a), and optimal use of the surplus heat with lower temperature (1b)

Status: Collection of data started

1a) Production of electricity from high temp surplus heat (SP2).

Define system border

Define necessary tools

No component development

1b) Optimal exploitation from lower temperature surplus heat (SP3 and SP4)

Which system solutions and industry may use surplus heat with different temperatures.

Consideration: Energy, environment and economy

Attached to Case 2

Creativ case 2

Energy efficient industry cluster

Coordinator: Tom Ståle Nordtvedt (SP3)

Goal: System solutions for optimal energy use in an cluster of different industries, heat suppliers, and local infrastructure.

Description: Focus on TINE Nærbø. Analyses of Nærbø industry park, how is it working, and how can i eventually be improved. Energy efficiency in a park contra single companies. How critic is changes of companies internally in the industry park? Technical solutions. Industry- and socio-political aspects

Status: Paper written and presented: “Sustainable energy management in an industry park” - SET2010.

General system solution (eTransport) for energy exchange between different industries in cluster presented.

Creativ case 3

Control of heat pump processes

Coordinator: Trond Andresen (SP4)

Goal: Define energy reduction and capacity increase potential on optimal controlled industry processes.

Description: There will be established dynamic simulation models. This models will be used to calculate on defined industry processes. Effectivity and economical aspects with oil-free CO_2 heat pump systems.

Status: Model developed on pelagic batch freezing tunnel, and will be presented in paper, Prague Aug 2011. Industriell data next.

Model on RSW is established, but will be further optimiced

Case 3.1: RSW

Generic model will be verified by simulate a defined production plant

Case 3.2: Freezing tunnels

Generic model will be verified by simulate a defined production plant

Case 3.3: Clip fish drying tunnels

Generic model will be verified by simulate a defined production plant

Creativ case 4

Case 4:

Oil free supermarkets

Coordinator: Armin Hafner (SP4)

Goal: Establish system solution for the first supermarket with oil free heating and cooling processes .

Description: Focus on REMA1000 plants**.**

Case description will be set after production of the BIP-application

Creativ case 5

Energy savings by use of hot water tank

Coordinator: Tom Ståle Nordtvedt (SP3)

Goal:. Utilisation of surplus heat from spraydrying and pasturisation of milk, combined with heat from low temp storage gives surplus hot water with different temperatures i separate water tanks. Optimal use of surplus hot water in combination with heat pumps will be calculated.

Description: TINE Verdal will build new spray driers, and in the same time go from gas heating to use district heating instead. The plan is to utilise surplus heat optimal by store hot water in 4 different tanks (10, 30, 50 and 90°C). Heat pumps will be used to move temperatures for optimal use. High potential for energy savings.
Dimensioning of components, calculation of amount of water with different temperatures (Ice water, hot water, steam, water savings). Calulations based on outdoor environment. CIP, control and automation, equipment location, back-up solution will be done by Partner
Other partners: HAL, Nsk, FHL, TINE Nærbø, and cases spec Case 1.2**.**

Status: Collection of data finished. Generic model will be established before end of 2010.

Creativ case 6

Energy use of superchilling contra traditional chilling of fish

Coordinator: Tom Ståle Nordtvedt (SP3)

Goal: Energy calculation on a defined superchilling plant for fish will be done and compared with traditional chilling of fish.

Description:
Calculation on energy use of traditional contra superchilling of salmon.
Definition of yield and storage life. Connected with KMB lønnsom foredling, and with LCA analysis of superchilled fish and meat (SP1).

Status:
Abstract sent: “Comparative Life Cycle Assessment (LCA) of Production and Transport of Chilled versus Superchilled Haddock *(Melanogrammus aeglefinus)* Fillets from Norway to France”.
Paper Jan 2011, 11th International Congress on Engineering and Food, Athens

Background activities

- Activities in the different Tasks in SP 2, 3 and SP4 will supply the cases with necessary data, information, and components / systems / lab- or pilotplants.