Smart Load Solutions web service for producer and consumer

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2015

Contents

1 Consumer sensor data

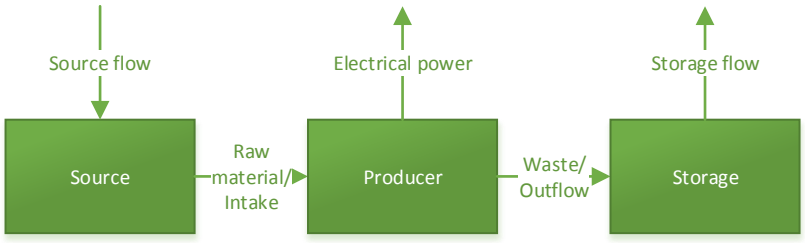
1.1 Description

To optimize production for the next day, the characteristics of the production/consumption process need to be measured. Currently this part is in development and needs to be measured by the customer.

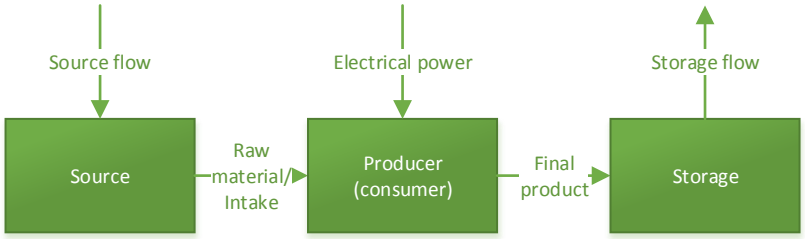
2 Producer/Consumer optimization model

2.1 Description

Production/consumer model purpose is to optimize the power production/consumption plan for the next day by maximizing revenue (producer) or by minimizing the total cost (consumer). The producer and consumer consists of source, producer (consumer) and storage. Source consists of raw material to be used in production. Producer uses the raw material to create the final product, which is stored in storage.



Producer model



Consumer model

2.2 Request message components

In this section we cover the message components of the optimization.

`Source.InitialLevel`

Initial level of the source.

`Source.FinalLevel`

Source level at the end of the optimization period (e.g. end of the day).

`Source.MinimumLevel`

Minimum level of the source.

`Source.MaximumLevel`

Maximum level of the source.

`Source.Flow`

Input flow to the source.

`Producer.MinimumPower`

Minimum electrical power of the producer.

`Producer.MaximumPower`

Maximum electrical power of the producer.

`Producer.SourceChangeCharacteristic`

Source change characteristic, which tells us how many units of raw material is consumed per one unit of electrical consumption (e.g. t/MWh).

`Producer.StorageChangeCharacteristic`

Storage change characteristic, which tells us how many units of raw material is produced per one unit of electrical consumption (e.g. t/MWh).

`Storage.InitialLevel`

Initial level of the storage.

`Storage.FinalLevel`

Storage level at the end of the optimization period (e.g. end of the day).

`Storage.MinimumLevel`

Minimum level of the storage.

`Storage.MaximumLevel`

Maximum level of the storage.

`Storage.Flow`

Flow out of the storage.

2.3 Response message components

`power`

Electrical power used by consumer or produced by producer.

2.4 Sample messages

Sample messages for the optimization requests can be found from `http://optimizer.smart.load.solutions/metadata` under OptimizeConsumption and OptimizeProducer.