

U.S. LCI Database Project

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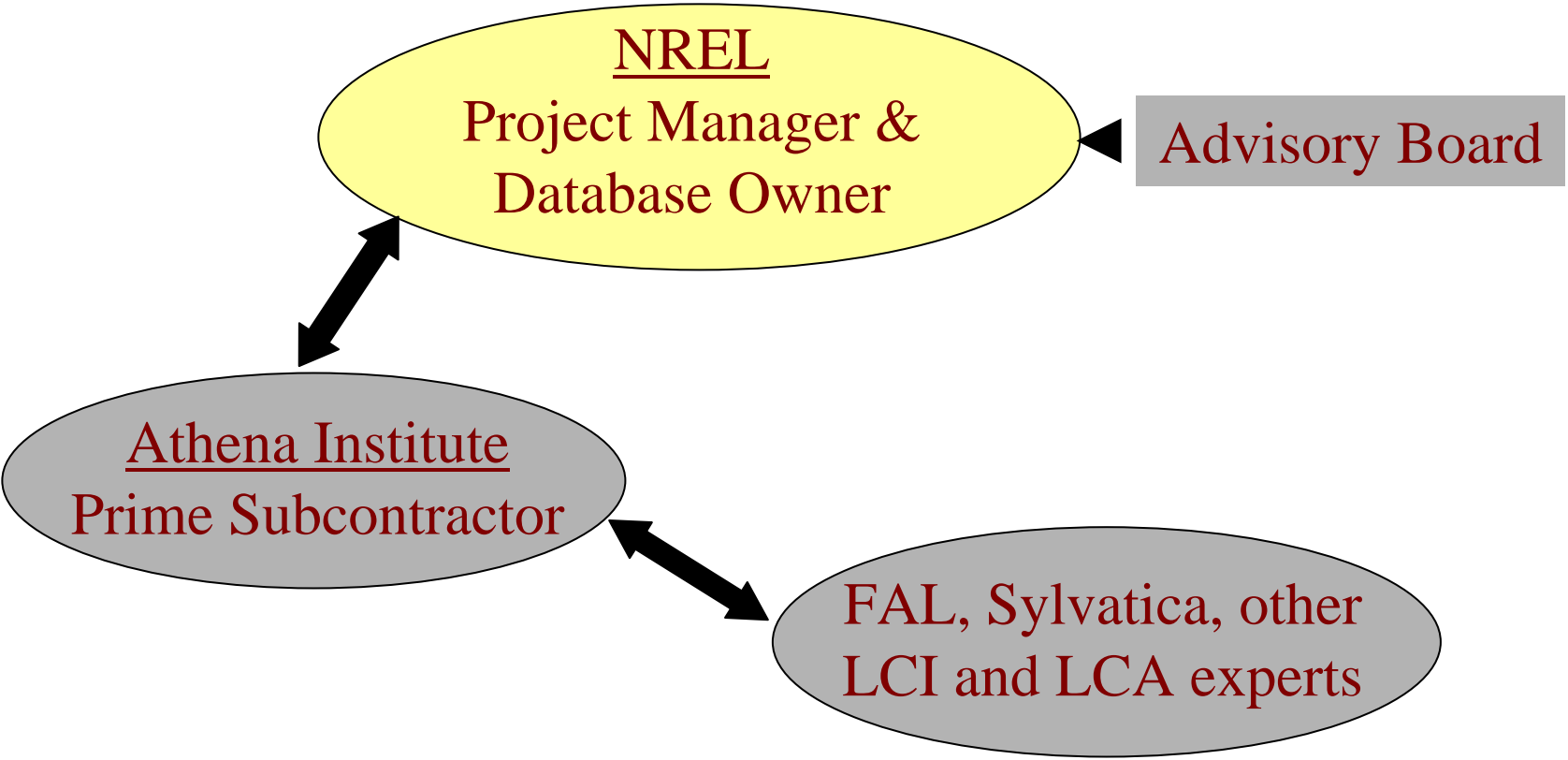
Project Objective

To develop a publicly available LCI database for commonly used materials, products, and processes

Motivation

- ◆ Data infrastructure to support policies, industry, e.g.,:
 - » Environmentally preferential purchasing
 - » Environmental product declarations
 - » Use of LCA in product improvement (e.g, LCA in LEED)
 - » More efficient resource use
 - » Etc.,
- ◆ Lack of publicly available LCI data in the U.S.
- ◆ Problem of data inconsistency

Project Organization



QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.

A Three-Phase Project

- ◆ I - Initiation Phase (1 year - complete)
 - » develop research guidelines and parameters
 - » prepare Phase II work program.

- ◆ II - Starting Inventory (2 years - complete)
 - » develop, implement format
 - » collect, analyze, review high priority LCI data

- ◆ III - Ongoing (underway)
 - » disseminate data
 - » maintain/expand database including 3rd party data

Funding

- ◆ US Government Departments for Phase I
 - » DOE, GSA, Navy
- ◆ Combination of government and private sector for Phases II & III
 - » DOE, GSA, EPA, Navy, USDA, NIST
- ◆ Private sector in-kind and cash contributions exceed direct government funding, e.g.,
 - » Vehicle Recycling Partnership — transformations
 - » Consortium for Research on Renewable Industrial Materials (CORRIM) — wood products
 - » American Plastics Council — resins

Key Database Criteria

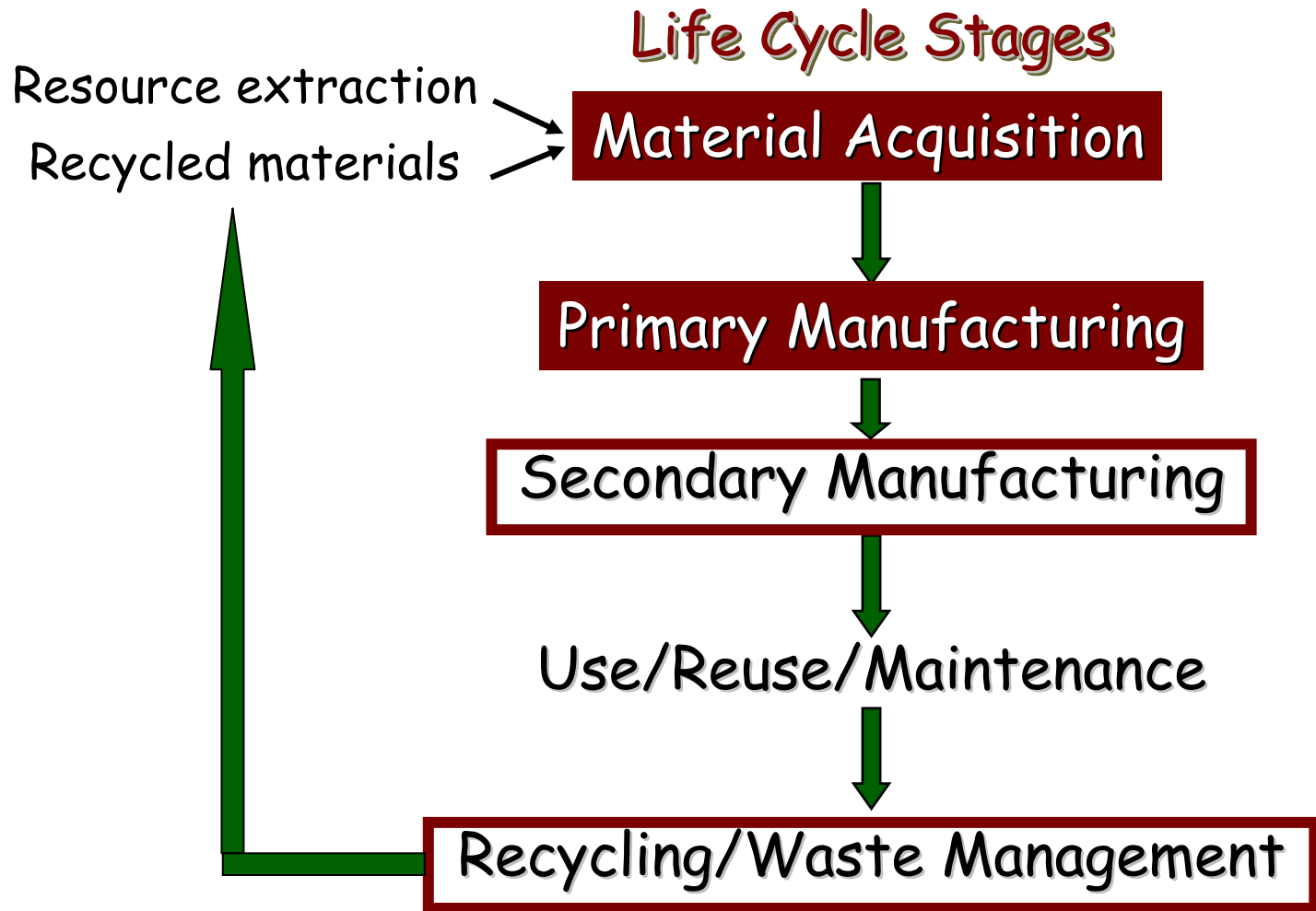
- ◆ Consistent protocol meeting ISO guidelines and standards
 - » transparent
 - » representative
 - » peer reviewed
- ◆ Uniform treatment of all materials
- ◆ Regional data development as necessary to reflect variations within and across sectors
- ◆ Fully accessible in format(s) to maximize use

Scope

- ◆ Common processes
 - » Energy production including electricity generation
 - » Energy use — stationary and transportation
 - » Energy pre-combustion
 - » End-of-life modules
- ◆ Commodity level manufacturing for commonly used materials and products
 - » unit process data — current emphasis on building products
 - » cradle-to-gate, gate-to-gate scope
- ◆ Standard transformation processes
 - » Casting, stamping, pressing, painting, etc.

75 modules now available

Cradle-to-Gate Focus



Critical Review Process

Step 1

- ◆ Routine internal NREL review
- ◆ May be limited to a sample of data sets within a module

Step 2

- ◆ Review by an external review panel if:
 - » internal review revealed problems or cause to suspect the data

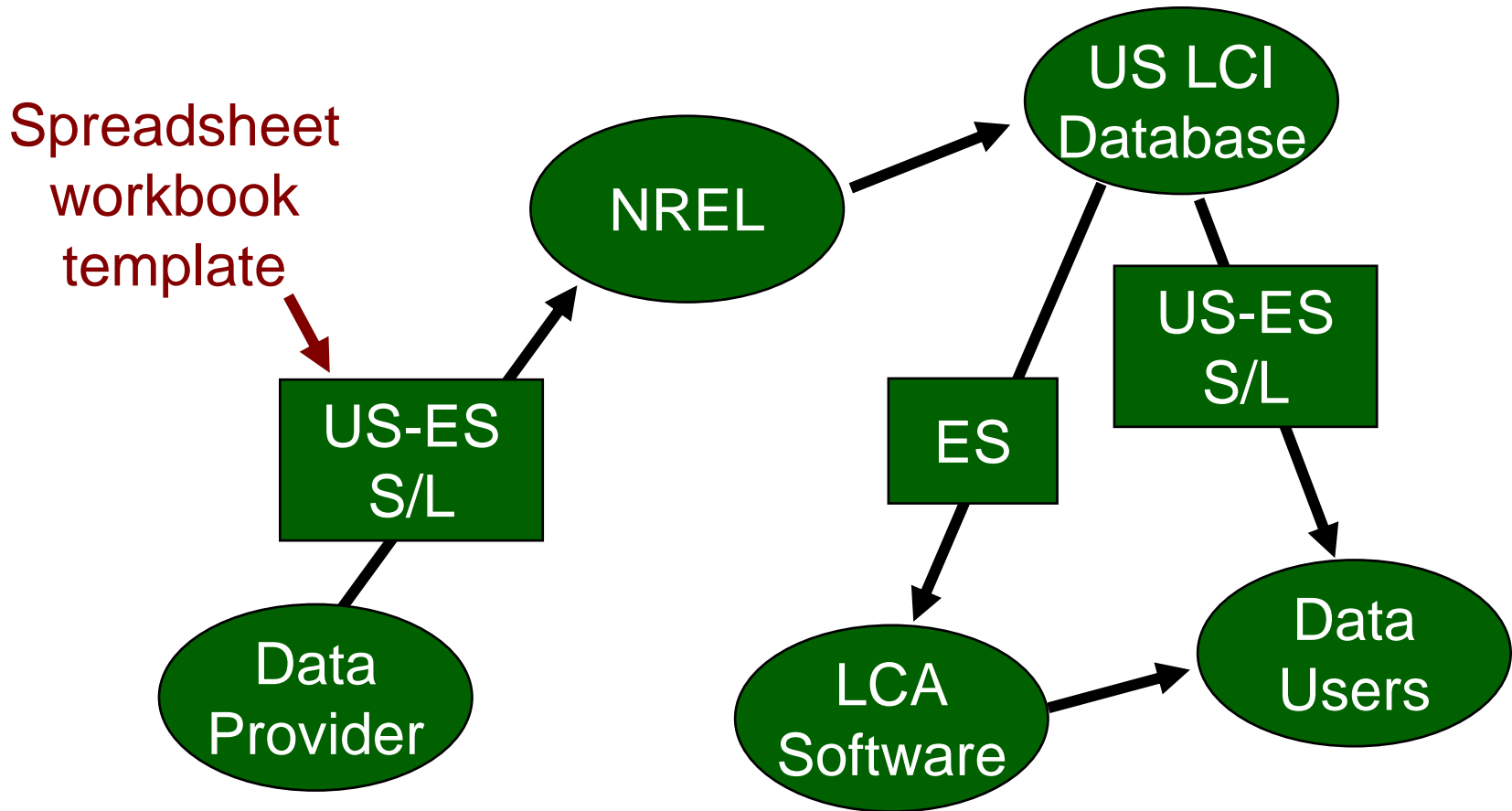
and/or

 - » 3rd party challenge with sufficient evidence to cast reasonable doubt on module validity

EcoSpold Format

- ◆ Harmonize, inter-link LCI data internationally (e.g., with Swiss EcoInvent data)
- ◆ Built on ISO 14048, SPOLD, SPINE
- ◆ Support data import into LCA tools
 - » SimaPro, GaBi, Umberto
- ◆ Optional export formats
 - » XML
 - » Excel
- ◆ Streamlined version for U.S. Project (S/L ES)

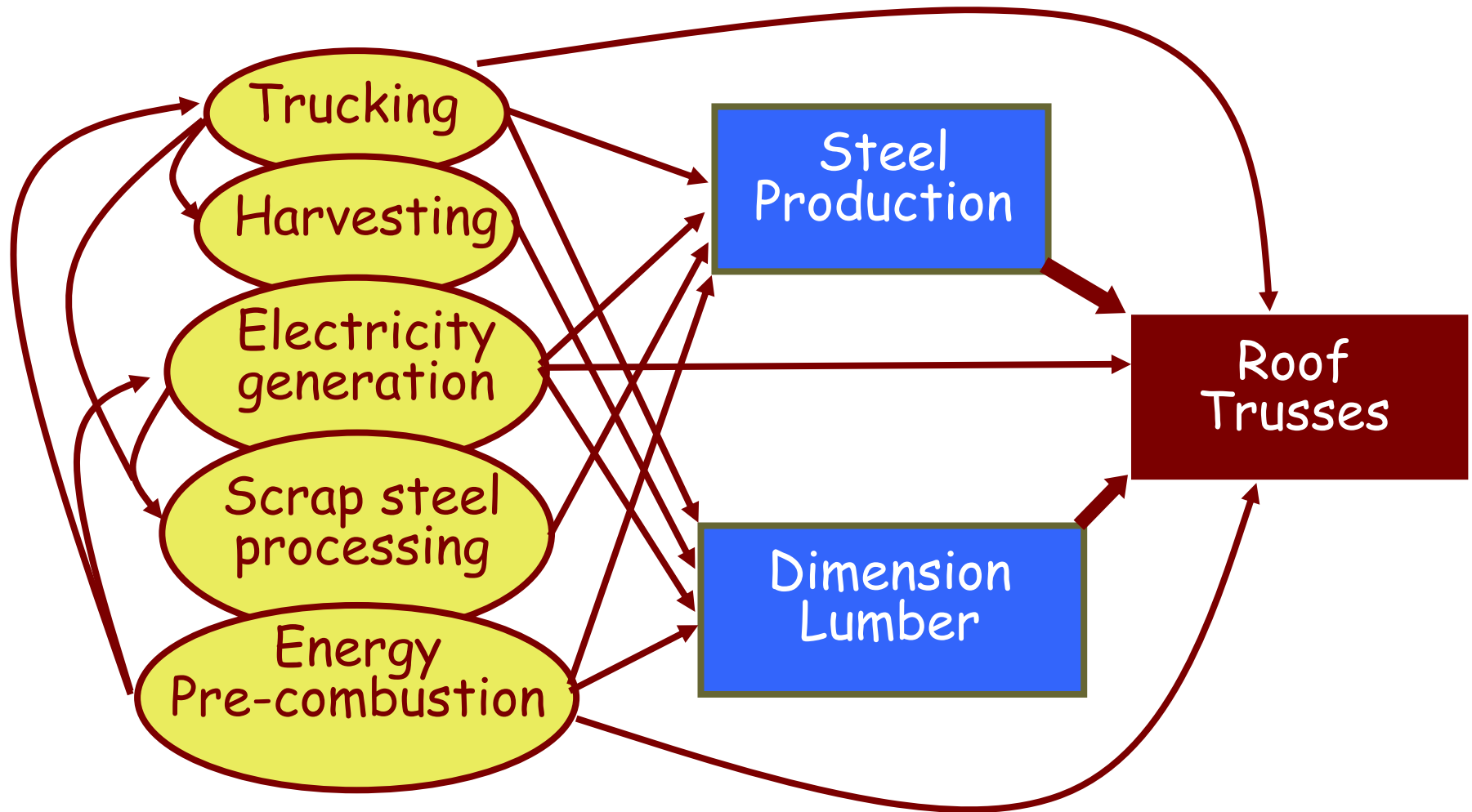
Streamlined US-ES



Database Users and Uses

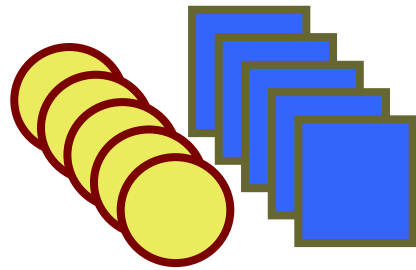
- ◆ Developers of tools
 - » for LCA practitioners (e.g., SimaPro)
 - » for non-practitioners (e.g., Athena EIE, BEES)
- ◆ Product assessment and labeling
- ◆ Manufacturers, researchers for specific product or process LCAs

Working with process modules

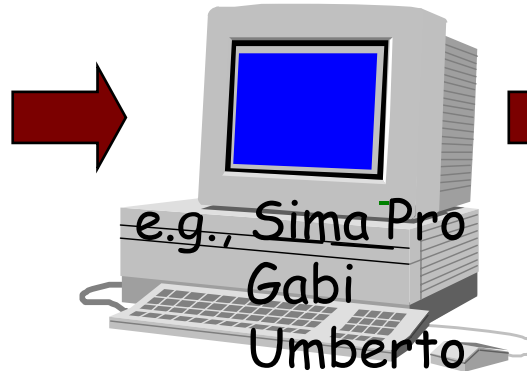


Putting the Data to Use

Database modules



Practitioner tools



Manufacturers

In-plant processes
Use phase

Product LCAs

Product Labeling

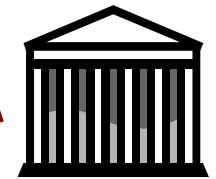
Environmental Product
Declarations

Environmentally
Preferential Purchasing



BEES

Building LCAs



Athena EIE

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are needed to see this picture.

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TIFF (LZW) decompressor
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www.nrel.gov/lci

www.athenaSMI.ca

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